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PROCEEDINGS

ARBITRATION

BETWEEN THE

WESTERN RAILROADS

AND THE

BROTHERHOOD OF LOCOMOTIVE ENGINEERS

AND THE

BROTHERHOOD OF LOCOMOTIVE FIREMEN AND ENGINEMEN

Submitted to Arbitration, under the Act of July 15, 1913
By Agreement Dated August 3, 1914

CHICAGO, ILLINOIS

Jan. 28-Feb. 9, 1915
Testimony Nos. 37-45 Pages 3711-4666

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IN THE MATTER OF THE
ARBITRATION
between the
WESTERN RAILWAYS
and
BROTHERHOOD OF LOCOMOTIVE ENGINEERS
and
BROTHERHOOD OF LOCOMOTIVE FIREMEN AND ENGINEMEN
under the Act approved July 15, 1913, *by agreement dated August* 3, 1914.

Chicago, Illinois, January 28, 1915.

Met pursuant to adjournment at 10:05 A. M.
Present: Arbitrators and parties as before.

Mr. Carter: Mr. Chairman and gentlemen of the Board: In connection with what was said yesterday I ask the pleasure of the Board to make a short statement. Yesterday morning I stated that we had a petition signed by 132 firemen on the Yazoo & Mississippi Valley Railroad, most of whom were negroes. I said at that time that I would file that petition here. I proceeded to have photostat copies made of the petition, when I was informed by Mr. McLaughlin, our Vice President, who conducted this matter, that those employes of the Yazoo & Mississippi Valley Railroad who circulated these petitions had, in many instances, assured the negro firemen that their names would not be exposed to the officials of that company. He tells me that he feels it would be very unfair to those men, to make their names a part of this record. We understand that the purpose of counsel for the railroads in introducing this matter at this time, is to lay the foundation for what evidently will be litigation. We understand from the statement of counsel for the railroads, yesterday morning, that they will not recognize the application of this award for the Yazoo & Mississippi Valley Railroad, because we do not represent those men, they are not members of this organization, etc. In the event that the officials

of the Illinois Central Railroad, the parent and controlling company, refuse to apply this award, it will devolve upon us to seek a remedy in the courts, I understand. At that time, we can file this petition and, I understand, seek the aid of the court in preventing any discrimination against the employes who had the audacity to petition this body. I will read the petition, omitting the names:

"We, the undersigned, locomotive firemen, employed on the Yazoo & Mississippi Valley Railroad, have been informed that a question has arisen as to whether we desire to be included in any award reached through the arbitration, now in progress in the city of Chicago, Illinois, between certain railroads and engineers and firemen and hostlers employed on such railroads. We, the undersigned, hereby certify that if we had been given the opportunity of expressing our choice in the matter, we would have elected to be represented by the same committee or committees that represent firemen and hostlers on other railroads; and we do hereby affirm that it is our desire to participate in any benefits arising from the award reached in said arbitration; and we hereby delegate authority to the joint committee, representing engineers, firemen and hostlers in said arbitration, to represent our interests. To disprove any statement that it is not our desire to be included among those firemen and hostlers, whose wages are now being arbitrated in said arbitration, we hereby affirm that it is not only our desire, but our demand that we be included."

In yesterday's proceedings, counsel for the railroads stated that his purpose was to make clear the fact and to prevent the possibility of any claim being made, that people who were not parties to the arbitration, by representation or otherwise, to make impossible the effort, not to represent these men, but to root them out of their jobs, and so forth. I hereby propose to counsel for the railroads, to join with me in a petition to the officials of the Illinois Central Railroad and the officials of the Yazoo & Mississippi Valley Railroad, to be fair to those negro firemen and not discharge them, because of their participation in this petition, or because of the fact that this Board will probably award them an increase in wages, as is their right as American citizens. I ask counsel for the railroads to join with me

in a petition which will prevent even the railroad companies rooting out these negroes, because they happen to be negroes.

Next, I think, Mr. Chairman and gentlemen of the Board, the railroads have injected something in these records that will long be regretted by them. They have raised the question of the right of these Brotherhoods to represent men in the employment of railroads who are not members of the Brotherhoods. The statement of counsel for the railroads which I have just read, shows that it is the attitude of the railroads and the Managers' Committee, as expressed through counsel for the railroads, that unless firemen or engineers are members of these organizations, are invited into our councils, they cannot be represented by us in proceedings like this. If that is the issue now made by the railroads, then it will devolve upon these Railway Brotherhoods to demand a closed shop. The next great fight, perhaps, will be to carry out that which the railroads say must be done. It will devolve upon the railroad corporations to reverse the policy of their entire history. And in order that it may not be said by the railroads that they cannot secure increases of wages through arbitration under the Federal Law unless they are members of our organizations, they will have to be members.

Now, it has not been the policy of these Brotherhoods in the past to coerce any man. We believe we have proved the advantage of permitting every man to join these organizations or to remain aloof from them if he so desires. We believe that by this liberal policy, this absence of coercive influence we have won the affection of every man who works for a railroad, whether he is a brother or not. Now, if our policy must be changed, and the next great battle fought between the engineers and firemen, and the conductors and trainmen with these railroads is for the closed shop, let it be known that it is not of our inviting, but because of the position of the railroads at this arbitration, expressed through their counsel, that unless they are members of these organizations and participate in our negotiations, they shall not be entitled to the benefit of an award. I say that, and at the time the fight comes, gentlemen, we will refer to the records here that the necessity of a closed shop has been brought about by the attitude of the railroads. I thank you.

Mr. Sheean: We cannot let stand upon the record any

such suggestion as that the railroads are interjecting into this the right of organized or unorganized labor to present its demands and to have its demands carefully, dispassionately and considerately passed upon.

The point, as stated yesterday, was and is, and as confirmed by the letter read by Mr. Carter this morning, or the petition, "Had we been given an opportunity, we might have presented demands"—the point that I wish to make here, and the only point, and the point that has been made, is that these men, as admitted by the gentlemen who now claim to represent them, were not asked to participate, were given no opportunity, either to vote upon or to consider the concerted claims that are alleged now to have been presented upon their behalf. And, as pointed out yesterday, it was to make a matter of record the fact that when this scale was presented, there was, in the presentation of it, a specific notice that it was presented only by the engineers upon that road, and to make a matter of record that at the time it was presented, and at no time since or prior to the signing of the contract, and at no time since, either directly or by representation, were the firemen upon this particular road parties to the arbitration. We have raised and have made no issue upon the right of railroad employes, whether organized or unorganized, singly or collectively, to present to the railroads, severally or collectively, any suggestion for a change in working conditions or a change in wages. That right is not predicated either upon race or color, or condition of being organized or unorganized, and the only fact, and the fact that we wish to make a matter of record, was and is that these gentlemen who bar the employes who are now the firemen upon that road, from membership in their organization, not only make them ineligible for membership, but did not give them an opportunity to participate by vote or otherwise, upon the question whether they approved or disapproved of these demands, by their own record never claimed to represent them, and it is to make that fact clear and a matter of record, and to repudiate the suggestion that we are endeavoring here, in any manner, to make any distinction between organized or unorganized labor, or between labor of any particular class or color, that I want to have it appear upon the record that we do not accept the position that they attempt to place upon the railroads in this movement.

The Chairman: How do the wages paid firemen on this particular road, compare with those paid firemen on other roads?

Mr. Sheean: I think a comparison of the schedules, your Honor, so far as I am informed, as to the basis of percentage, as stated here yesterday as to how the men there are paid, will show that it is not unlike the schedule shown in the Southeastern territory, where the schedules make specific provisions as between white and colored firemen.

The Chairman: Has the usual ratio of percentage been maintained in fixing wages for these firemen, that has obtained on other roads?

Mr. Park: Mr. Stone, I think, stated in the record the other day, that the ratio was 50 per cent of the wages the engineers received, and that if the engineers received an increase the firemen's pay was increased accordingly. In other words, it will always remain 50 per cent.

Mr. Stone: I think it is higher than 50 per cent. I haven't the correspondence here, it is in my file in Cleveland, but I think it is a little higher than that.

Mr. Park: I don't know the rate.

Mr. Carter: I think the exhibits for the railroads show that the negro receives just what the traffic will bear, to use an ordinary expression. I think the exhibits for the railroads show that on some of these railroads where they are availing themselves of colored labor, that they get as low, I think, you said, Mr. Keefe, as $1.05 a day, I believe. I don't know just what it is, but it is shown in your exhibit.

Mr. Keefe: There is no exhibit of mine that shows that, Mr. Carter.

Mr. Carter: I have in mind something that I noticed in one of your exhibits showing a very low rate on some railroad.

Mr. Keefe: What exhibit are you referring to, Mr. Carter?

Mr. Carter: I beg your pardon, it was Mr. Bremerman's exhibit, the first witness to take the stand for the railroads.

Mr. Keefe: For the Southeastern territory, I think you refer to.

Mr. Carter: I think you will find there is no rule. Where the engineers have assisted the firemen, however, colored or white, there has generally been an agreement as to the percentage

of the wages of the engineers which will be paid the firemen. It runs as low as 45 per cent I think in some instances, and as high as perhaps 50 per cent. I am stating this without reference to the records, and without any particular information upon the subject.

With regard to this being the first notice that we desired the firemen on the Yazoo & Mississippi Valley to participate in these negotiations, I will say that I never gave a thought to the subject. The matter was discussed very early in February, if I remember right, until we agreed to arbitrate. At no time, did any member of the Managers' Committee suggest that the firemen on the Yazoo & Mississippi Valley should be excluded from the benefits of these negotiations. They did specifically call our attention to the attitude of the St. Louis & San Francisco Railroad with regard to hostlers, and they repeatedly called our attention to the attitude of this other Chicago railroad with regard to its engineers, but at no time, during any of these negotiations, have I any recollection of the question of these negotiations being for all firemen on all roads; I don't believe at any time that that question was raised.

I understand counsel for the railroads has filed with this Board the public correspondence. It may be that in some of that correspondence the railroads raised the question of the firemen on the Y. & M. V. being included in the results of these negotiations. If so, I shall ask counsel for the railroads, at his pleasure, to call the attention of the Board to any intimation on the part of the railroads, that the firemen on the Yazoo & Mississippi Valley were not included.

The first information I had that this question was going to be raised, was when Mr. Stone said that counsel for the railroads had asked him what would be our attitude in the matter. I told him positively that we expected the award to apply to all firemen that were included in this arbitration award. Subsequent to that, I had a conversation with counsel for the railroads, and he brought up the same matter, and I think he will bear me out when I say that the moment he proposed it I opposed it as though I was earnest in the opposition. There was no wishy-washy business about it.

I was so alarmed that I delegated the Vice President of this organization, Mr. McLaughlin, to go there and ascertain

if these negroes did want to participate, and would give this committee, or this Board, authority to represent them, and this is the result.

Mr. Sheean: Mr. Carter, did you not, at that time, say that you wanted to look up the question as to whether or not these men had in fact voted upon it, and you were not certain as to whether or not they had had opportunity to do so, and in fact whether you did have authority? I then called your attention to the fact that the proposition we had, purported to be submitted only by the engineers, and you were in some doubt as to whether they, in fact, had had the proposition submitted or had passed upon that proposition.

Mr. Carter: I think, Mr. Sheean, that the witness to the conversation, Mr. Stone, will bear out that I got a little excited over the matter.

Mr. Sheean: I grant you that. You thought and said that Mr. Stone had not given the men a chance to pass upon it, yet you understood that that had been attended to by Mr. Stone, but that you were a little uncertain as to whether or not the men upon this railroad had in fact ever been permitted—

Mr. Carter: I never for a moment doubted that this Board had authority to pass upon this matter, and I now state, gentlemen of the Board, that the agreement entered into between the Managers' Committee and the Committee representing Engineers and Firemen, should be carried out in good faith. It is too late for the Firemen and Engineers to say "Well, we are going to demand that the St. Louis & San Francisco Railroad apply this award to hostlers, because we waived that right, when we agreed in these negotiations that the St. Louis & San Francisco should except their hostlers." Pardon me, what is the name of this—"Nor can we insist that the Chicago Junction Railroad include its engineers, because it was specifically provided in the agreement that it would apply to firemen only."

As I stated yesterday, it was never intended to exclude the hostlers, but I realize, gentlemen of the Board, now, that the language of the agreement is against us, and we are willing to stand by our agreement, even though we suffer, and we protest against the railroads, at this late date, attempting to write into the record anything that will relieve them of any responsibility placed upon them by the agreement.

Mr. Chairman, and gentlemen; at about the same time of the proceedings of the Eastern Arbitration of the Firemen and Hostlers in 1912, counsel for the railroads arose in his chair and read to the Board a notification by the Toledo, St. Louis & Western Railroad, that they desired to withdraw from the Arbitration. At that time, we had the honest support of the Managers' Committee, when we contended they had no right to withdraw. Yet, with what was said to be the law on our side, with what was said to be the support of the Managers' Committee on our side, the Toledo, St. Louis & Western Railroad repudiated that Arbitration Agreement, and have never applied a single penny of the Award in the East, and the men on that road are so weak that they cannot protect themselves. That is the condition in the East, and it was because of the efforts on the part of the railroads in the East to avoid the effect of the award, that the men in the West almost left the service of the company, before they would accept another arbitration; and this, Mr. Chairman, only shows that railroads will not be bound by arbitration agreements.

Mr. Nagel: Mr. Carter, I do not wish to encumber the record with further discussion, but I am anxious to understand your attitude. You have read us a form of a petition, but you have, for reasons of your own, declined to make known the signatures, unless that should become necessary in a court proceeding, following our award. You do not claim that the reading of that form in any way confers jurisdiction upon this Board, do you?

Mr. Carter: I contend, Mr. Nagel, that it communicates to the Board that these men have been consulted. We will be glad to bring the men here who circulated this petition and have them testify to the accuracy of that statement.

Mr. Nagel: In other words, for the present, we may be wiser, but we have no authority.

Mr. Carter: If this Board has the authority of a court to restrain the Illinois Central Railroad from discriminating against these men, we will put it in the record.

Mr. Nagel: That leads to the second question. Up to this time, if this Board has authority to include those men, it must be found in the agreement.

Mr. Carter: Yes, sir.

Mr. Nagel: Upon which the whole proceeding is based?

Mr. Carter: Yes, sir.

Mr. Nagel: Then if we conclude that the agreement does give us authority to include those men, what is your precise position? Do you urge that the same wages be allowed to these firemen as to the others, or that a separate standardization be introduced for them?

Mr. Carter: How is that?

Mr. Nagel: Or that a separate standardization be established for them?

Mr. Carter: It is our earnest desire, and we understood that this arbitration standardized the wages of all engineers and firemen, who are already receiving more than we receive. We expect the firemen on the Yazoo & Mississippi Valley to receive just as much money as the firemen on the Chicago, Burlington & Quincy, or anybody else. They do as hard work, and if that company has not required the same educational advantages of firemen that the Santa Fe and other roads have, the fault lies with the company and not with the firemen.

Mr. Nagel: I am more interested in your attitude, and have special reasons for it. The further question I want to ask is this: was I right yesterday in understanding you to say that if the wages of these negro firemen should be made equal to the wages of white men, that white men would undoubtedly be substituted for negroes?

Mr. Carter: No, sir, I did not intend to convey that idea. I said that the records of the past indicated that whenever the railroads had to pay as much money for a negro fireman as for a white fireman, they generally preferred the white fireman, but that was not our fault.

Mr. Nagel: You do not understand me as finding fault with anybody?

Mr. Carter: No, I understand.

Mr. Nagel: I am looking for light, and I would like to understand just what your position is.

Mr. Carter: Our position is, briefly, that under the Arbitration Agreement, the agreement by which we abandoned our aggressive policies and resorted to the Federal law, that agreement specifically protects the firemen on the Yazoo & Mississippi Valley Railroad.

Mr. Nagel: I understand that.

Mr. Carter: Now, the only purpose in introducing this was to offset the statement of counsel for the railroads, day before yesterday, that these men were represented without any authority.

Mr. Nagel: You cannot expect us to accept a statement until you divulge the signatures to that statement. That is impossible, and we will just dismiss that for the present. I wanted you to appreciate that, while you may have the laboring oar now, we shall ultimately have it, and would like to know what we are doing as we go along.

Mr. Carter: We are going to stand on the Arbitration Agreement, Mr. Chairman and gentlemen; and Mr. McLaughlin, who is here, if he may be heard without being put under oath, he will explain why we do not present the petition. Has he the privilege to do that?

Mr. Byram: Mr. Carter, did your organization represent these men on the Yazoo & Mississippi Valley in the 1910 negotiations and award?

Mr. Carter: In 1910, if I remember it, the Yazoo & Mississippi Valley refused to come into the movement.

Mr. Byram: You did not represent them in that movement?

Mr. Carter: I understand the Yazoo & Mississippi Valley refused to permit the Managers' Committee to represent them.

Mr. Byram: And the negotiations in that movement were conducted without representation on the part of these colored men?

Mr. Carter: That is my recollection, on the part of any fireman, but I want to say, Mr. Byram, my recollection is that the percentage of white men at that time was much greater than since that time. I think the process of eliminating the white man has progressed rapidly.

Mr. Byram: I believe you said yesterday there were about 15 per cent white men.

Mr. Carter: I said that, but Mr. Byram, I do not know. There are very few.

Mr. Byram: And these white men receive the same rates of pay as the colored men now, do they?

Mr. Carter: I do not know. Do you know, Mr. McLaugh-

lin? Mr. McLaughlin, who has just been there, says he understands all firemen receive the same wages.

Mr. Byram: And that is about what percentage of the engineers' wages, did you say, on the Yazoo & Mississippi Valley?

Mr. Carter: Mr. McLaughlin says he understands they receive 50 per cent, but he is not sure. Mr. McLaughlin would be pleased to state to you that when this—can he make a statement?

The Chairman: If Mr. McLaughlin has any additional reason to offer why this Board should assume jurisdiction of the matter as respects this particular road, we would be glad to hear him.

Mr. Carter: It was not for that purpose, but for the purpose of explaining their situation.

The Chairman: Incidentally he can explain that also.

Mr. Carter: Mr. McLaughlin, briefly state why you advised me not to present this?

Mr. McLaughlin: Gentlemen, the reason why I advised Mr. Carter not to divulge the names of these men, was that we promised those men on this railroad who signed the petition that their names would not be divulged, because if their names were known to the local officials, the men feared they would be discharged from the service of that railroad.

Mr. Carter: What attitude did the negroes then take with the officials while the petition was being circulated?

Mr. McLaughlin: After the officers found we were circulating the petition, we had a great deal of trouble then in securing any signatures, after it became known to the officers we were taking a vote of the men, because they made the negro firemen believe that the white men would run them off the job if they signed the petition.

Mr. Park: In endeavoring to get the names of these men signed to the petition, was it explained to them what the consequence would be, that is, that they would be eliminated, from your point of view, or Mr. Carter's?

Mr. McLaughlin: No, the men that took that vote explained to the men why they were taking the vote. They were trying to get an increase of pay and better the conditions of the men on that railroad, and the firemen were very desirous of

becoming a party to this arbitration for that purpose. Some of them have explained that if it became known to the local officials there that they had signed a petition of this kind, they would be discharged, so we promised them their names would not be divulged to the officials of that railroad.

Mr. Park: Mr. McLaughlin, you have been, in a way, connected with me for ten or fifteen years, on the Union Pacific, and in other positions. Do you think I would permit the men to be discharged under those conditions; that is, judging from your experience of my management, under your observation?

Mr. McLaughlin: Well, unfortunately, Mr. Park, I do not believe, you would have the knowledge, or, in other words, you would not be in a position to prevent those local officials from discharging those men for other things. They would say they discharged them for other things, while really they discharge them for signing the petition. I know from my past experience of local officials that they would take those things out on the men, irrespective of the wishes of their superior officers.

Mr. Sheean: Mr. McLaughlin, did you have with you at the time this petition was circulated any copy of what these proposals were?

Mr. McLaughlin: Yes, sir.

Mr. Sheean: And you went over, article by article, with the men, just what propositions were in arbitration here, with these colored firemen?

Mr. McLaughlin: The men who took the vote on that railroad had a copy of our request here and were told to explain it to the men.

Mr. Sheean: And the explanation was left to the judgment of the men who took the vote in each case, as to what the proposal meant?

Mr. McLaughlin: This petition which Mr. Carter read, here this morning, was read to every one of them.

Mr. Sheean: But I mean the proposals, the sixteen articles which are in arbitration, did you have any copy of those to submit to the men?

Mr. McLaughlin: I could not say whether each man who took the vote read the entire proposal over to the men or not. But they did explain to the men that if they desired to secure

the increase in pay and better their working conditions, we were circulating the petition for that purpose.

Mr. Sheean: Asking them to sign a petition for bettering their working conditions and increasing their pay, but up to that time, and that is since this hearing was on, no fireman on the Yazoo & Mississippi Valley had ever seen the proposals which are here in arbitration?

Mr. McLaughlin: I could not say as to whether they did or not.

Mr. Sheean: Well, you know there was no strike vote taken by the firemen on that road at the time the strike vote was taken with the engineers?

Mr. McLaughlin: I do not know exactly, but I understood that—I have some correspondence that indicated that Mr. Stone intended that the engineers' committee on that railroad should have taken the vote of the firemen, but he did not do it, for some reason or other.

Mr. Sheean: And, so far as you know, up to the time this petition was circulated, you have no personal knowledge of any fireman on the Yazoo & Mississippi Valley having seen these sixteen articles or considering them?

Mr. McLaughlin: No, I have no personal knowledge, but I believe the white men on that railroad have seen them, because the minutes of the meetings held in Chicago have been sent to the lodges on that system, the same as any other, and there is no question but what the white men on that railroad were familiar with what we were asking for.

Mr. Sheean: But they were not asked to vote upon whether or not they, upon that road, would insist upon those articles. That, I think, you said to be the fact, that the firemen on that railroad were not voted on that proposition?

Mr. McLaughlin: Not until I went down there.

Mr. Sheean: That is here within the last week or two?

Mr. McLaughlin: Well, it has not been within the last week or two.

Mr. Sheean: Well, it has been since this hearing has been on?

Mr. McLaughlin: Yes.

Mr. Byram: What effect do you think the granting of the regular rates of pay under this award to the colored firemen on

the Yazoo & Mississippi Valley will have on the permanency of their employment? That is, what effect do you think it will have on the colored firemen down there?

Mr. McLaughlin: I do not think it will have any material effect other than to increase their pay and better their conditions, because the country they run through down there and the place they are working, I do not think any more white men will go to work than are there now.

Mr. Byram: You do not agree with the statement Mr. Carter made, that the railroads would naturally eliminate the colored men if they could get white men, if they get the white men's rate?

Mr. McLaughlin: Yes, I do, if they could get the white men to work.

Mr. Byram: They have some white men there now?

Mr. McLaughlin: Yes.

Mr. Byram: And I understood Mr. Carter to say, through you, that they have less white men now than they had before. That is, the number of white men employed on that railroad as firemen is less than it was.

Mr. McLaughlin: I do not know as to that.

Mr. Byram: But they have some now?

Mr. McLaughlin: Yes, sir.

Mr. Byram: About how many do you think they have?

Mr. McLaughlin: Well, they estimate about thirty white firemen on the Yazoo & Mississippi Valley.

Mr. Byram: About how many firemen altogether?

Mr. McLaughlin: Between 230 and 250.

Mr. Byram: That would be not quite 15 per cent, then?

Mr. McLaughlin: I have not figured out what the percentage is.

Mr. Nagel: Were the negro firemen given to understand that they would get an increase or that they would get the same wages that would be allowed to other firemen?

Mr. McLaughlin: They were given to understand they would get the same wages and working conditions that were allowed to firemen on the other railroads.

Mr. Carter: I do not care to burden the record, and this is the last time I shall say anything on the subject, unless something new comes up on the other side.

The policy of the southern railroads is to convince the negro fireman that the white fireman is trying to get his job. They have created, in the minds of the negro firemen down there, about the same condition of affairs as existed between the Catholic church and the A. P. A. about fifteen years ago, and perhaps for the same purpose. They have convinced the negro fireman that the white fireman is after him, and, therefore, to look out, or the white man will get his job. They have done this simply to make a menial and servile slave of their negro firemen. The negro fireman does want to elevate himself, but the moment he tries to do it, the roundhouse foreman says "If you sign this petition, or do this or that, a white man will get your job," and the poor negro is helpless. Now, that has been brought out right there.

Now, with regard to Mr. Park, I have knowledge of Mr. Park; I have known of people who worked for Mr. Park, and his reputation as an employer is all right. But the trouble with Mr. Park is that he is away up in the official scale, and he perhaps never sees and seldom thinks of those poor negroes down there in the swamps of Mississippi. He may think of them as he hears it today, but he cannot go down there in person and protect them from a practice that has grown up on so many Southern roads.

These poor negroes, I am told, do not know how much money they get; and I am told this, gentlemen, that many of them pay for their jobs to local officials. I am told that they would not work there if they did not, and they haven't the power, they haven't the means by which they can remedy this evil. They are absolutely helpless.

Mr. Sheean: And yet you won't let them—

Mr. Carter: I am told that on this road you cannot tell how much a negro can get.

Mr. Sheean: And yet you won't let him into your organization, or take up any of these grievances through your organization?

Mr. Carter: Mr. Chairman, our organization, and others of the same kind, these Railroad Brotherhoods, have been referred to by other unions as would-be aristocrats. We have a very high qualification before a man is supposed to be admitted. I do not mean to say this always applies, but if the laws of these

Brotherhoods are lived up to, a man who drinks, a man who is subject to intemperance, would not be admitted. We admit only the best men, and I am going to say to you that it is not an unusual thing for a fireman to go through his whole period of firing without ever having been accepted as a member of this Brotherhood. Furthermore, firemen have been blackballed because of some of their personal affairs—maybe they had too many wives, or something of that kind. They have been blackballed out of our organization just as they would be out of the Odd Fellows, or the Masons, or any other fraternal institution.

That should not, however, deprive them of the right to the same wages, the same seniority rights, and in no instance have we discriminated against a non-union man. Today if a man has not been admitted to this Brotherhood, and is entitled to promotion, these two Brotherhoods will see that he gets his rights, whether he is a member or not; but as I have stated, the railroads have injected a very serious matter into this controversy; if that man now is not to be given his rights under the seniority rules, without being a member, we may do what other organizations do—take them all in and see that none work that are not in.

Mr. Sheean: Again I want to make clear that there is nothing in any suggestion that I have made here, or any intimation, that Mr. Carter or the members of his organization did not have a perfect right to obtain, by delegation or otherwise, from those who were not members of his union, as well as those who were members of his union, the right and authority to represent them. But the proposition presented disclaimed any such authority, and it never was obtained. They never at any time purported to represent, or to have authority from the firemen upon this road; and the suggestion made here, that membership in the organization was essential for consideration, is something that has never been suggested by us. That authority might be given directly by any of these men, the authority as we claim, and as we have attempted to show by the records themselves, was not had at any time.

The Chairman: It is unfortunate that this controversy should have arisen just at this time. Of course it will be the duty, and the first duty of the Board, to determine as to the extent of its jurisdiction, both as to the subject matter and as to the parties to this controversy. That is a question that we will

determine later in the light of the evidence and the Arbitration Agreement.

Mr. Stone: Now, Mr. Chairman, if I might say a word, and I have not desired to burden the record, but I do want, speaking as a chief executive official of the Brotherhood of Locomotive Engineers, to make our position so plain that there cannot be any chance of a misunderstanding.

Regardless of all that has been said by both counsel for the railroads and Mr. Carter, so far as the Brotherhood of Locomotive Engineers are concerned, we are going to stand right on the terms of the Arbitration Agreement. The counsel for the railroads and the railroads themselves had their day in court, and their time to have made these exceptions was before they signed that Arbitration Agreement, and not now. They did make exceptions for the Frisco; they did make exceptions for the Chicago Junction Railway, and I guess they forgot to make exceptions for the Yazoo & Mississippi Valley, or at least it would appear so.

But back of all that stands the fundamental principle that we could not accept or subscribe to for one minute, what Mr. Sheean says, "And simply that we might make clear the fact, and to prevent the possibility of any claim being made by people who were not parties to the Arbitration, by representation or otherwise."

For years and years, and years, this organization has taken the position that it represents the craft, and it made schedules and working conditions on these railroads where, perhaps, in many cases, it only had a small percentage of the men; and yet, it never was questioned before that they did not make the wage schedule for all men working in that class of service, and it has been accepted as a rule all these years. I agree with Mr. Carter, if the position is once taken that we can only legislate for our members, that then the policy of these great railroad organizations would have to be reversed. And, I think it would be one of the saddest days that would ever happen to us, because, from my point of view, the whole thing is un-American.

I do not believe you have a bit more right to say to a man that you have got to belong to a certain organization in order to earn your daily bread, than you have a right to say to a man

that he has got to vote a certain ticket, or belong to a certain church. And so we have had the so-called open shop, and we have been damned, individually and collectively, because we did have it, and different railroads, where they thought perhaps they would have future trouble have tried to give us the closed shop, time and again it has been offered to both of these organizations to make it a closed shop, and employ nobody else, and we have said that we did not want it.

It is the principle lying back of this thing that I fear, and not the mere fact that Mr. Sheean has injected in here the question about a few firemen down on the Yazoo & Mississippi Valley. I will say to you frankly that I think there is a bigger question than that back of the whole thing. I think this is only the entering wedge for the whole thing, and we will probably have unfinished business in the courts when Gabriel blows his trumpet, if this Board would uphold the claim made by the railroads at this time.

Mr. Byram: Mr. Stone, you said that you have always represented the craft. Did you make the agreement under which these men are now being paid, that is your organization?

Mr. Stone: We made the agreement for the engineers on that road, and I do not know whether the Committee made the percentage or not, but the percentage is well established throughout the Southern country on the roads where there is only one organization, that a certain per cent of the engineer's wage is paid to the fireman.

Mr. Byram: Is that a matter of agreement with your engineers?

Mr. Stone: It is often, of course, in some of our schedules, it is often shown, but in many places it is a matter of bulletin by the railroads. But, gentlemen, it has never been questioned but that every time the engineers got an increase that the firemen shared in that increase. Mr. Burgess was chairman of the Louisville & Nashville for years, and is perhaps more familiar with the Southern situation than any of our other Grand Officers, and he can no doubt give you information as to how it has always been arrived at in the Southeastern territory. I know there has always been a percentage of the wage paid the engineers, paid to the firemen.

Mr. Byram: Has that been due to an agreement with the engineers?

Mr. Burgess: I don't want to interrupt you—

Mr. Byram: I was asking Mr. Stone.

Mr. Stone: It has, in many cases.

Mr. Byram: Is it on the Yazoo & Mississippi Valley?

Mr. Stone: I don't know. I don't find it in our schedule. I don't know whether it is a mutual agreement or what it is.

Mr. Byram: There is no written record that it is a part of your agreement?

Mr. Stone: No, but it has never been questioned, just like any of these cases that grow up by custom, the custom is established and it is accepted by both sides without a written agreement.

Mr. Byram: That is the extent then to which the engineers have heretofore negotiated the firemen's wages on the Yazoo & Mississippi Valley?

Mr. Stone: It is, perhaps, true, and yet it has never been questioned before when the engineer received an increase, that the fireman also got his percentage of increase of whatever the rates might be.

Mr. Byram: That is done by the company, though.

Mr. Stone: Yes; and while I am on that same subject, on this question of rooting out, I want to call the attention of the Board to the fact that these engineers and firemen don't put men out of positions. If a negro fireman on the Yazoo & Mississippi Valley is taken out of service, it will be because some official on that road discharges him. It won't be because these two organizations took him out. It is an important fact, gentlemen, and should be kept before you, that these men don't discharge men out of positions. The railroads can be the only parties that either employ men or discharge men.

Mr. Burgess: Mr. Stone, if I may be permitted, Mr. Chairman?

The Chairman: Yes.

Mr. Burgess: Did I understand you to say that prior to these negotiations, that there was an agreement between Mr. Carter and yourself, that on roads where the firemen did not have a committee of their own, that the engineers would represent them?

Mr. Stone: Yes, sir, that is correct. There is a working agreement between the two organizations.

Mr. Burgess: Is it not a fact, Mr. Stone, that the Louisville & Nashville Railroad makes a contract for the firemen, with a committee of the locomotive engineers?

Mr. Stone: Yes, sir.

Mr. Burgess: Is it not a fact that all the rates for the firemen are set forth in the engineers' contract?

Mr. Stone: Yes, sir.

Mr. Burgess: That is one of the largest railroads in the Southeast country?

Mr. Stone: Yes.

Mr. Burgess: I would like to ask Mr. Carter a question. Mr. Carter, have you any information as to the Atlantic & West Point Railroad, under the presidency of Mr. Wickersham?

Mr. Carter: While we have many files of cases on that road that have been handled, I am not familiar with them at this time, but it is my understanding that most of the firemen on that road, within recent years, at least, have been negroes, but in any event the engineers are looking out for the interests of both. I understand, quite recently, there is a movement on foot to give the firemen a standing of their own.

Mr. Burgess: Have you any knowledge as to what pay is granted to the negro firemen on the Atlantic & West Point?

Mr. Carter: I cannot say, personally.

Mr. Burgess: You do not know that they practically receive the same rate of pay as the white men?

Mr. Carter: I do not know that.

Mr. Burgess: Will you endeavor to find out whether that is true or not?

Mr. Carter: I can find out by wiring the office, right away.

Mr. Burgess: Thank you.

Mr. Park: Mr. Burgess, who represents the brakeman on the Louisville & Nashville?

Mr. Burgess: The conductors. When the conductors' committee go in, Mr. Park, they make an agreement for the conductors and the brakemen. That is a matter of general knowledge, but I can positively state that when the engineers negotiate a schedule they do negotiate for the firemen. The reason, Mr. Park, that I could not state definitely for the conductors'

committee is because I did not serve on that committee, but, if I remember correctly, the brakemen's rate is tabulated in the same agreement with the conductors. The firemen's rate, at least, is tabulated with the engineers.

Mr. Park: It automatically keeps the same proportion. If the engineers are granted an increase, automatically, the firemen get the same increase?

Mr. Burgess: No, not automatically, but it is a matter that is written in the record, just the same as the engineers—or in the agreement, rather.

Mr. Park: But, in the last arbitration, Mr. Carter did not at that time represent the colored firemen on the Yazoo & Mississippi Valley?

Mr. Burgess: I do not know anything about that. All that I was trying to bring out, Mr. Park, was something that I am familiar with in the Southeastern country. You have heard Mr. Carter's statements, and that is all I have heard.

Mr. Nagel: Mr. Stone?

Mr. Stone: Yes, sir.

Mr. Nagel: It is true, is it not, that a fireman who has the slightest percentage of negro blood could not become a member of the Brotherhood?

Mr. Stone: That is true, yes, sir.

Mr. Nagel: It is also true that there are a number of firemen and engineers employed, who are not members of the Brotherhood?

Mr. Stone: Yes, sir, on almost every road.

Mr. Nagel: Now, the agreement of submission under which we are at work here, is signed by railroads and by the Brotherhood, and provides that the award shall stand for a certain period of time?

Mr. Stone: Yes, sir.

Mr. Nagel: That is binding upon the roads and the Brotherhoods, and, of course, all the members of the Brotherhoods. Those who are not members of the Brotherhoods, are not bound, by virtue of the agreement, are they, but by force of circumstances?

Mr. Stone: Probably both.

Mr. Nagel: Where do you find the agreement which binds them to this award?

Mr. Stone: We find the agreement the same as we would if we had a grievance. By request, we would take up and handle his grievance, even though not a member, just the same as if he was a member.

Mr. Nagel: I appreciate that, but I would rather rely upon the course of conditions than a written paper at any time. I want to know precisely where you stand, however. The Brotherhood is bound and every member is bound, but those who are not members of the Brotherhood, strictly speaking, as I take it, are not bound by the paper agreement, but they are bound by the fact that the Brotherhood virtually controls the situation.

Mr. Stone: Absolutely so. Furthermore, neither the Brotherhood of Locomotive Firemen and Enginemen, or Brotherhood of Locomotive Engineers would take in a man of the yellow race—Japanese. Quite a number have been put on firing, recently. He would not be eligible for membership. He must be white born. That is what our law says.

Mr. Nagel: I just wanted to get the facts, that was all.

J. H. KEEFE was recalled for further examination and having been previously sworn, testified as follows:

Mr. Sheean: Mr. Keefe, we were on Exhibit No. 10, at the time of adjournment last evening.

Mr. Keefe: Yes, sir.

Mr. Sheean: This Exhibit No. 10, on the last sheet—on the last two sheets, sheets 6 and 7, shows respectively in miscellaneous freight service and in pusher, helper work, and other unclassified service, the comparative speed made in October, 1910, and in October, 1913.

Mr. Keefe: Yes, sir.

Mr. Sheean: Now, on sheet 1 of the exhibit you have summarized, for all roads, the changes in the speed of trains in those classes of service, between 1910 and 1913?

Mr. Keefe: Yes, sir.

Mr. Sheean: In the miscellaneous freight service, not counting numbers of trains, for the reasons which you gave yesterday, but comparing on the basis of train mileage, what change was made in the two years?

Mr. Keefe: That is for pusher, helper, work, wreck, belt line, transfer and other unclassified service, excluding yard

service, shows that on a basis of train miles, in October, 1910, 28.76 per cent of the train miles were on a speed greater than ten miles per hour, while in October, 1913, the percentage was 31.65.

Mr. Sheean: And in the miscellaneous freight service, what changes were made in this period?

Mr. Keefe: On the basis of the number of trains operated, 50.31 per cent of the trains were on a speed basis or paid miles, as compared with 52.75 per cent, in October, 1913, and on the basis of the number of train mileage, it was 51.07 in October, 1910, and 55.13 per cent in October, 1913.

Mr. Sheean: This entire Exhibit 10, then, is prepared for the purpose of ascertaining whether or not the increased size of engines has, in fact, tended to retard the movement of trains and thereby keep men longer on the road?

Mr. Keefe: Yes, sir.

Mr. Sheean: And Exhibit 10, taken as a whole, makes the comparison as between the two busy months—of two busy months of the yer, October, 1910, and October, 1913?

Mr. Keefe: Yes, sir.

Mr. Sheean: In the different classes of service, it is shown for each of the roads, severally, pages 2 to 7, while on page 1, summarized for all the roads, as an entire system?

Mr. Keefe: Yes, sir.

Mr. Sheean: Just why was it, Mr. Keefe, that on the detail pages you did not show the percentages which are carried out on this summary sheet?

Mr. Keefe: Why, we carried the percentage to the sheet No. 1, to show it altogether, so as to obtain a bird's-eye view of the whole situation, as of all classes of service. The details as for each class of service are shown by the detailed sheets, but this sheet, No. 1, gives at a glance the showing, comparing October, 1913, with October, 1910.

Mr. Sheean: Well, in all classes of service, whether compared on the basis of the number of trains operated, or on the basis of the train mileage, a greater percentage were operated on a speed basis, in October, 1913, than in 1910, with the single exception of local or way freight?

Mr. Keefe: Yes, sir.

Mr. Sheean: And computed on the basis of actual train

mileage, made in local or way freight service, there has been no change in the two periods?

Mr. Keefe: In that particular class of service.

Mr. Sheean: While if you computed it on the basis of the number of trains, there is a slightly less per cent in 1913 of the number of trains operated on a speed basis, instead of an hourly basis?

Mr. Keefe: Yes, sir, but considering all classes of service, as shown on the bottom of Column No. 9 and Column No. 10, there was a greater percentage of trains operated in October, 1913, that were paid on a speed basis, than in October, 1910. In other words, it was 77.9 per cent in October, 1913, as compared with 76.26 per cent in October, 1910.

Mr. Sheean: And the total number of trains that were operated in the two years—in the month of October, I mean?

Mr. Keefe: The total number of trains operated, which is the total of columns 1 and 3 aggregated 481,834 trains, while the total trains for October, 1913, which is the total of columns 5 and 7, aggregated 499,854, or an increase of over 18,000 trains in one month.

Mr. Sheean: On the total number of trains which were less than ten miles per hour, and, therefore, paid on the hourly basis, in October, 1910, there were a total number of 114,387?

Mr. Keefe: Yes, as shown by the bottom of column No. 3.

Mr. Sheean: While the total under column No. 7, in 1913, there were 114,492, counting all trains which were paid on the hourly basis?

Mr. Keefe: Yes.

Mr. Sheean: As compared with that in 1910, the number of trains which accomplished their run at a greater speed than ten miles per hour, was 367,447 in 1910, while in 1913 that had grown to 385,362?

Mr. Keefe: Yes; but, Mr. Sheean, I want to call attention to the fact that, while the number of trains that were on the road, less than ten miles an hour, was slightly more in 1913 than it was in 1910, the number of miles traversed by those trains was less in 1913 than it was in 1910. In other words, there was less mileage on the hourly basis in October, 1913, than there was in 1910.

Mr. Sheean: So that, compared in all classes of service,

whether you take it on the basis of the number of trains operated, there was an improvement from 76.26 per cent to 77.09 per cent?

Mr. Keefe: Yes, sir.

Mr. Sheean: Counting merely the number of trains?

Mr. Keefe: Yes, sir.

Mr. Sheean: While if you compare it on the basis of the train mileage there was an improvement from 76.40 in October, 1910, to 77.76 in October, 1913?

Mr. Keefe: Yes, sir.

Mr. Sheean: That is, notwithstanding the fact that a greater number of trains were moved in October, 1913, than in October, 1910, and a larger mileage made?

Mr. Keefe: Yes.

Mr. Sheean: Now, Mr. Keefe, was there in connection with any of the sheets which show the individual operations on the several lines following that, anything to which you wish to direct attention especially? Of course sheet No. 2 gives the average time on the average road, running time, in October, 1910, 9.41 hours in making a run of 113.2 miles, while October, 1913, shows the average running time 9.31 in making 112.6 miles.

Mr. Keefe: Yes. I would like to direct attention to the results shown on column No. 6 of sheet No. 2. It shows that for the 111,865 through freight trains making 12,963,295 miles, the average time per train in hours was 8.39 hours, as shown on the bottom of column No. 5, and that the average length of the run for each one of those trains was 115.88 miles. That was in 1910.

Mr. Sheean: That is in column 3?

Mr. Keefe: Yes, in column 3. That was in 1910. Now, in 1913, the number of trains run is shown in column No. 11, as 113,362 trains, or an increase over October, 1910; that their average distance operated, as shown at the bottom of column 13, was 116.06, and that the average time per train was 8.38 hours, as shown on the bottom of column 15.

Mr. Sheean: So that on this large percentage in through freight service, as shown on page 1, in through freight trains, about 77 per cent is paid on the mileage basis, of the total through freight.

Mr. Keefe: Yes.

Mr. Sheean: And the detail of through freight here on

sheet No. 2, shows that of this large proportion, namely, 77 per cent of it, in October, 1913, considered as a system, the men are averaging 116.06 miles in an average time of 8.38 hours?

Mr. Keefe: Yes. There is another point I would like to call attention to, and that is that those trains that were on an hourly basis, in other words, that were less than ten miles an hour, in October, 1910, the 36,382 trains—

Mr. Sheean: Shown in column 6?

Mr. Keefe: Shown in column 6, made an average distance of 105.01 miles, but they were 12.58 hours in making that 105 miles.

Mr. Sheean: As shown in column 10?

Mr. Keefe: As shown in column 10. Whereas, in October, 1913, with 35,905 trains, or a less number—

Mr. Sheean: Shown in column 16?

Mr. Keefe: Yes, that they average 101.57 miles, as shown in column 18, but with 12.27 hours per train only, or .3 of an hour less than in October, 1910.

Mr. Sheean: You have here the individual reports of the separate railroads?

Mr. Keefe: Yes.

Mr. Sheean: From which this summary has been prepared?

Mr. Keefe: Yes. It is similar to the sheet Exhibit 11; that is, Exhibit 11 contains the blank form.

Mr. Sheean: And the reports of the individual railroads in each of these classes of service, on the form shown in Exhibit 11, are here and available for check or verification?

Mr. Keefe: Yes, sir.

Mr. Sheean: We do not want to encumber the record with them, but we will leave them in the custody of the Board for such reasonable check as they may want to give them.

Now, is there anything further on this Exhibit 10, to which you wish to direct attention?

Mr. Keefe: No, I think we covered all of the points yesterday, and in addition to those I mentioned this morning.

Mr. Sheean: You may cross-examine, Mr. Stone.

CROSS-EXAMINATION.

Mr. Stone: On sheet 1 of Exhibit 10, Mr. Keefe, the other

day I was trying to get you to say what the percentage of local freight to through freight was, and you had not the least idea, and after repeated questions, I finally managed to get you to guess at it; and yet in your next exhibit, you show every train and the actual mileage. So you did have knowledge, did you not?

Mr. Keefe: I did not recall that at that time, and also remember, under the instructions, if you will refer to them, the local or way freight trains as shown in this exhibit includes such mixed trains as were paid local or way freight rates.

Mr. Stone: Are we to understand by this exhibit, take your local or way freight, in column 3, that there were 52,604 trains that made their run in less than ten miles an hour?

Mr. Keefe: Yes, sir.

Mr. Stone: Or at a greater speed than ten miles an hour?

Mr. Keefe: At less than ten miles an hour.

Mr. Stone: And 24,000 that made it at a greater speed?

Mr. Keefe: 24,106, yes, sir.

Mr. Stone: In column 1?

Mr. Keefe: In column 1.

Mr. Stone: Do I understand you make the claim that these 24,106 trains made no overtime?

Mr. Keefe: Because of on the road longer than ten hours, that would be my inference, that they made no overtime on those particular trains.

Mr. Stone: Then, if that is correct, 30 per cent of these trains in 1913 made no overtime; is that the inference, in column 12?

Mr. Keefe: Column 12.

Mr. Stone: What is that 30 per cent, is that percentage of all trains run, or is that the percentage of trains—

Mr. Keefe: Percentage of total number of local trains—

Mr. Stone: That made no overtime?

Mr. Keefe: That were on a speed basis of greater than ten miles an hour.

Mr. Stone: Then your understanding is that 30 per cent of the local trains made no overtime?

Mr. Keefe: Because of being on the road longer than ten hours going 100 miles. I am referring—

Mr. Stone: Less than 10 miles, percentage of trains that accomplish their run at a speed greater than 10 miles per hour.

Mr. Keefe: Yes, sir.

Mr. Stone: So they must have been on the road less than 10 hours for 100 miles.

Mr. Keefe: 30 per cent of them, yes, sir.

Mr. Stone: Of the trains run?

Mr. Keefe: Not necessarily 100 miles. It might have been a 120 mile run, but they were less than 10 hours making the 120 mile run.

Mr. Stone: Taking your mileage and dividing it by the number of trains, your mileage for each, which, of course, I understand, is the average of averages, and does not mean anything, yet it is a fact that the average miles per train is only 75?

Mr. Keefe: What is the average of averages? What do you refer to as being the average of averages?

Mr. Stone: Well, I imagine you got that when you added all the miles together and added all the trains together.

Mr. Keefe: I don't understand I have any average of averages whatever, when I add the total trains and total miles together.

Mr. Stone: Well, it would bring the same answer.

Mr. Keefe: It would not.

Mr. Stone: All right, that is a difference of opinion.

Mr. Keefe: Yes, sir.

Mr. Stone: I am glad to know that you are positive about some points of this. If you figure 75 miles per train, are we to infer that each one of these trains was paid 25 constructive miles, from that?

Mr. Keefe: It would depend, of course, on the schedule; but it shows that the average length of the trains is the sum of the number of trains divided by the number of miles, either the actual miles divided by the number of trains—I have not made that computation, is the reason I did not want to subscribe to it.

Mr. Stone: The same is true of the through freight service. It figures about 75 miles per train.

Mr. Keefe: In what month?

Mr. Stone: The month of October, you are showing.

Mr. Keefe: 1910 or 1913?

Mr. Stone: Either of them show about the same, there is not much difference.

Mr. Keefe: Please refer me to the column where it shows there is 75 miles for through freight trains.

Mr. Stone: You do not show that.

Mr. Keefe: Yes, sir, sheet No. 2.

Mr. Stone: In what column?

Mr. Keefe: Column No. 3. For October, 1910, on trains run at a less speed than 10 miles an hour, column No. 8, trains at a less speed than 10 miles per hour; that is, for October, 1910. October, 1913, column 13, shows the average distance per train for those that were on a mileage basis, while column 18 shows the average distance run per train of those that were on the hourly basis, and shows 101.57—

Mr. Stone: You are showing your through freight, and I was discussing local freight a few moments ago.

Mr. Keefe: You had referred me to the through freight, and I was answering.

Mr. Stone: What does your local freight show?

Mr. Keefe: I have not made any calculations on that, Mr. Stone.

Mr. Sheean: It can be done very easily, can it not?

Mr. Keefe: It can be done very readily, if you wish me to do so.

Mr. Stone: In arriving at the number of trains, I think you say that you counted a turn-around as one train, or a combination of short runs by one crew in one day, as one train?

Mr. Keefe: Yes, sir.

Mr. Stone: For example, if they went out and back six times and made six short runs, that is one train, in your figures?

Mr. Keefe: Yes, sir; those were the instructions.

Mr. Stone: Are we to understand from this Exhibit No. 10 that you are attempting to show there is a faster movement of freight trains with this heavier tonnage than there was in 1910?

Mr. Keefe: We are attempting to show the actual facts as to the movement of freight, one period compared with the other, and to indicate that there is no slowing up in the movement of our traffic, both freight, passenger and all classes.

Mr. Stone: And it is a fact that some 78.30 per cent of the trains in 1913 got over the road, as you understand it, with no

overtime? I am referring to sheet No. 1, in your last column, through freight, I am speaking of.

Mr. Keefe: In October, 1913, there were 78.30 per cent of the through freight trains that were run at a speed greater than 10 miles per hour.

Mr. Stone: And your understanding is they made no overtime?

Mr. Keefe: Dependent upon the schedule provisions.

Mr. Stone: Well, do you know of any schedule where the speed basis is less than ten miles per hour?

Mr. Keefe: I believe there are a few roads that have a lesser speed basis than that.

Mr. Stone: And there are also others where they have a speed basis of eight miles per hour, are there not?

Mr. Keefe: Yes, sir, a few of them.

Mr. Stone: And these show that the men went over the road at a greater speed than ten miles per hour?

Mr. Keefe: That the trains did.

Mr. Stone: How do you reconcile that with the fact that here is less than 20 per cent of all trains run in through freight service, and yet you show such an enormous increase in overtime?

Mr. Keefe: An enormous increase in overtime?

Mr. Stone: Yes.

Mr. Keefe: Increase over what?

Mr. Stone: Such an enormous increase in the cost of overtime.

Mr. Keefe: The overtime figures show for themselves, in Exhibit 3, as to the relation of the overtime to the total payments.

Mr. Stone: The same is true of this local, in the second line, and across the page, 55 per cent of all trains run were local trains, if I figure correctly, or somewhere near that.

Mr. Keefe: 55 per cent of all trains run?

Mr. Stone: Were local trains.

Mr. Keefe: No, I do not agree to that at all, Mr. Stone.

Mr. Stone: You do not?

Mr. Keefe: No, sir.

Mr. Stone: Well, there were 24,953 that made it at a speed greater than 10 miles an hour, and 56,537 trains that made it in

a longer period than 10 miles per hour. The way you word this is a peculiar wording, but they were longer than 10 hours in getting over the road, were they not?

Mr. Keefe: They ran at a speed of less than 10 miles an hour for the distance they traveled.

Mr. Stone: So they were longer in getting over the road than ten hours for 100 miles?

Mr. Keefe: For 100 miles, yes.

Mr. Stone: That makes a total of 81,490 trains?

Mr. Keefe: Yes, sir.

Mr. Stone: Take your 113,362 trains in through freight, column 5, and your 35,905 trains in column 7, and it makes 149,-267 trains run. So the number of local trains is 55 per cent?

Mr. Keefe: You have not included the mixed trains or the miscellaneous freight service, including turn-arounds, which are shown below there. You said 55 per cent of the total number of trains. That is what I took exception to.

Mr. Stone: Which class do you put these mixed trains in, passenger, through freight or local?

Mr. Keefe: The mixed trains, as provided for in the instructions on Exhibit No. 11, provide that "Where Mixed Trains are also Way Freights, they should be shown as 'Local or Way Freights.'"

Mr. Stone: They should be shown as locals?

Mr. Keefe: Yes, sir.

Mr. Stone: They don't all pay the local freight rate, do they?

Mr. Keefe: I have not made an analysis of the schedules on that, Mr. Stone.

Mr. Stone: I think the percentage would be so small that it would scare you.

Coming back to this question of these local trains, there were 81,490 trains run in local in that month. Of these, 24.593 trains had no overtime, or 30 per cent of them.

Mr. Keefe: It is 24,953, isn't it, Mr. Stone?

Mr. Stone: 24,953?

Mr. Keefe: That is what is on my copy, column 5.

Mr. Stone: 24,953, plus 56,537, that is the number of trains run?

Mr. Keefe: 81,490.

Mr. Stone: Yes.

Mr. Keefe: Yes.

Mr. Stone: And 30.18 per cent of that is about 24,593 trains that got no overtime?

Mr. Keefe: It is 24,953 that were run at a speed basis greater than ten miles per hour.

Mr. Stone: So the percentage of trains in local that got the overtime was very small?

Mr. Keefe: I am not attempting to show what trains got overtime or what trains did not get overtime. I am showing the trains that accomplished their runs at a speed greater or less than ten miles per hour.

Mr. Stone: Is it fair to infer that all these trains that did not make their run at a speed of ten miles per hour or greater were the heavy power and the heavy tonnage?

Mr. Keefe: I would not put any inference of that character on it, Mr. Stone.

Mr. Stone: Then is it fair to assume that all these trains that were longer on the road than a basis of ten miles per hour, were the light engines and the light trains?

Mr. Keefe: I would not put that inference on it, because there is nothing to infer any conclusion of that kind from.

Mr. Stone: But if you wanted to be fair in this comparison, and give the true facts of the case why did you not make a comparison on territory where heavy power was installed, as compared with the light divisions, instead of making an average of all?

Mr. Keefe: We made a comparison for every individual railroad in the movement, and did not separate it or segregate it to any particular locality, or any particular group of roads, but we showed every railroad, party to the movement, as to what the results were. There were a few of the roads that did not furnish us the data, but it was not because we did not ask for it or insist upon having it to the extent that we did. We tried to portray, or tried to show the information for the entire territory as a whole, without regard to any particular class or part of it, or any particular railroad.

Mr. Stone: But it is a fact, is it not, that on one division you perhaps have light power, or a number of short branch lines, and that that would more than overbalance the heavy

power on another division where they had heavy tonnage and longer hours, in a general average?

Mr. Keefe: We show the situation for the entire railroads and for all of the mileage of the railroads.

Mr. Stone: And perhaps you might have heavy power on only three districts of that road, and yet the average of the light power would more than overbalance the heavy power on that road?

Mr. Keefe: We showed the conditions regardless of the class or size or power; we showed the situation as a whole.

Mr. Stone: In other words, you averaged the whole business, and if there were fifteen light engines on one division getting over the road in a time that overbalanced the work of the fifteen heavy engines on another division, that put in long hours on that road, your general average would show that result of the overbalancing of the heavy power by the light power?

Mr. Keefe: We made no averages of that character. We showed the total number of trains run, the total results made, and the total hours engaged in making them, and the overtime whether long or short, and the length of time on the road, either a long time on the road or a short time on the road, without regard to the tonnage, and without regard to how many cars were in the trains, and we made that identical comparison for the months of October, 1910, and October, 1913, so that the basis is absolutely uniform for one period of time as compared with the other.

Mr. Stone: The basis may be the same, but there is a lot of heavy power that has gone into use since that all of us know about who are familiar with the operation of the railroads, and that heavier power has longer hours in service and heavy tonnage, yet by striking an average of all these lines you cover that all up in this general average.

Mr. Keefe: We covered up nothing whatever; we show the facts as they actually are.

Mr. Stone: Just where is this heavy power located? Take, for example, the Santa Fe Railroad, where is your heavy power and these long hours that some of our witnesses told us about, located?

Mr. Keefe: What is your definition of heavy power and long hours? What do you refer to particularly, Mr. Stone?

Mr. Stone: Well, I have in mind this modern power, any of this modern power. The Santa Fe did not get as much of it in the last few years as some of the other roads, because it had a great deal of heavy power, but you have had some heavy power added. Take, for example, your Decapods, where ten years ago you could not find a road big enough to get them over from the roundhouse, hardly, and now you couple two of them together and make a Mallet; what districts are they on at this time? The twenty Decapods that were made into Mallets, where are they at the present time?

Mr. Keefe: I don't know, Mr. Stone.

Mr. Stone: You have no explanation to offer as to how you reconcile sheet No. 2, showing the enormous number of trains that get over the road in the average time of 8.39 hours, and the tremendous increase in the cost of overtime that is shown in one of your other exhibits?

Mr. Keefe: I don't care to give assent to either one of the points as put in your question, Mr. Stone, either as to any reconciliation being necessary, or as to any enormous amount of overtime paid out.

Mr. Stone: You do show an increase in overtime, do you not, in one of your exhibits?

Mr. Keefe: We show the actual amount of overtime paid in October, 1913, and we also show the actual wages that were paid. We make no comparison as to the amount of overtime paid out, one month with another.

Mr. Stone: But on that sheet showing the percentage of trains, even in through freight service, their overtime would be very small, so the overtime would be practically a small amount, or should be?

Mr. Keefe: The overtime is what it actually was, Mr. Stone, as shown by our Exhibit No. 3.

Mr. Stone: That is the reason why I cannot make it and Exhibit 10 fit together.

Mr. Keefe: I can see nothing inconsistent between either one of the two statements whatever.

Mr. Stone: I did not expect that you would.

Mr. Keefe: There are no inconsistencies.

Mr. Stone: In this sheet No. 6, Exhibit No. 10, do you

charge here every train that worked in work train, pusher and helper and belt line service?

Mr. Keefe: Sheet No. 6?

Mr. Stone: Yes.

Mr. Keefe: No.

Mr. Stone: How would you figure a helper working on the mountain, or pushing trains up the hill, which perhaps makes four or five trips a day? Would he be shown as helper for five trips?

Mr. Keefe: He would not be shown on Sheet No. 6 at all, Mr. Stone.

Mr. Stone: He does not show in here at all?

Mr. Keefe: Not on Sheet No. 6, no, sir.

Mr. Stone: What does Sheet No. 6 show?

Mr. Keefe: It shows the miscellaneous freight service, including turn-arounds and other irregular freight service not included under the heads of through freight, local or way freight—

Mr. Stone: Where do you find any such wording as you are reading now?

Mr. Keefe: At the top of Sheet No. 6.

Mr. Stone: "Not including the headings?"

Mr. Keefe: "Not included under headings: Through Freight, Local or Way Freight, Mixed Trains, Pusher, Helper, Work, Wreck, Belt Line, Transfer and other Unclassified Service."

Mr. Stone: I understand all this miscellaneous service, you say, is recorded under the local freight service—

Mr. Keefe: No, sir, miscellaneous freight service is shown on Sheet No. 6, but if you were looking for pusher, helper, work, wreck, belt line, transfer and other unclassified service, it is shown on Sheet No. 7. Sheet No. 6 is the miscellaneous freight service.

Mr. Stone: That should be charged to through freight service?

Mr. Keefe: It includes turn-arounds and other irregular freight service.

Mr. Stone: But is not carried—

Mr. Keefe: That is not carried in the through freight, the local or way freight, the mixed trains, pusher, helper, work,

wreck, belt line, transfer and other unclassified service statements.

Mr. Stone: Why do you segregate it by itself? It is either through freight service or local, is it not?

Mr. Keefe: The instructions, if you will please refer to them, Mr. Stone, show that under the heading of through freight we have shown all trains which run the entire distance between terminals, omitting turn-around or intermediate service, and showing the turn-arounds or intermediate service, and the miscellaneous service under the heding "Miscellaneous freight service:—Including Turn-arounds and other Irregular Freight Service not included under Items 1, 2, 3 and 6," so as to give a correct portrayal of the through freight service.

Mr. Stone: Then we are to understand that, if we want to get the correct amount of miles in through freight service, Sheet No. 6 should be added to the through freight service shown on Sheet No. 1?

Mr. Keefe: Sheet No. 1 is a recapitulation, Mr. Stone.

Mr. Stone: Is that a recapitulation of all of this, and including this?

Mr. Keefe: Yes, sir.

Mr. Stone: This is included in Sheet No. 1?

Mr. Keefe: Yes, Sheet No. 1 is a recapitulation of all of the following sheets, 2 to 7, inclusive.

Mr. Stone: Then, when I take Sheet 1 and look at through freight service in the top line I find included Sheet No. 6?

Mr. Keefe: Yes, sir, under the head of "Miscellaneous Freight Service," the fifth line, or the fifth separation.

Mr. Stone: Then I understand that on 55 per cent of that no overtime was made?

Mr. Keefe: 55 per cent of those trains were run on a speed basis greater than ten miles an hour.

The Chairman: Does that indicate that there was no overtime?

Mr. Keefe: It would depend, Mr. Chairman, on some roads, whether they would get overtime after ten hours, or after eight hours. If you had a ten hour road, considered as a ten hour road, it would mean they would get no overtime if they were ten hours going 100 miles, if all of them were on that basis.

Mr. Stone: Of course, there is also nothing here to show

whether they earned overtime before departure or after arrival; this is simply the actual running time between terminals?

Mr. Keefe: That is what is plainly stated in the explanatory notes in each one of the statements.

Mr. Stone: So it is not a fair comparison of the day's work, perhaps; it may be that he was two or three hours on duty before he left, or he may have been two or three hours after his arrival, which would give him overtime?

Mr. Keefe: It is a fair comparison as to the length of time these trains consumed in getting over the road, comparing October, 1913, with the performance in October, 1910.

Mr. Stone: But it does not, in any way, express or show how long men were on duty for that particular day?

Mr. Keefe: It shows the length of time, Mr. Stone, that the men were running their trains between terminals.

Mr. Stone: But it does not show what time they came on duty or what time they got off duty, or what the average day's work was? It may have been possible that if that had all been included it would have put your average up two or there hours per day, isn't that true?

Mr. Keefe: I wouldn't say that.

Mr. Stone: In making this showing for the transfer service, how did you determine what transfer service was?

Mr. Keefe: Each road was left free to include in transfer service, whatever class of service they considered as being transfer service.

Mr. Stone: You don't know whether it was a uniform rule adopted by all the roads or not, then?

Mr. Keefe: As to the transfer or belt line service, no, because I am not familiar with what has been the practice of classifying such work.

Mr. Stone: That is all.

Mr. Byram: Mr. Keefe, Mr. Stone asked you a question about some large increase in overtime, shown by your exhibits. Have you made any comparison of the overtime in October, 1910, with the overtime in October, 1913, in these exhibits?

Mr. Keefe: No, sir.

Mr. Byram: What increase did you refer to?

Mr. Keefe: I did not refer to any increase when I an-

swered Mr. Stone's question, because there were no increases in overtime.

Mr. Byram: Oh, I understood you to assent to the fact that there had been some increases.

Mr. Keefe: No, sir, I did not assent. I positively did not assent to the fact that there had been any increased overtime.

Mr. Byram: What reference to overtime is there in these exhibits?

Mr. Keefe: One comparison as to what actual overtime was paid in October, 1913, compared with what they would have received had their proposal been in effect in that month, showing a large increase there as to what the men would have received for overtime, compared with what they did actually receive.

Mr. Byram: There was no comparison in any of these statistics in these exhibits that would warrant the statement that there was a large increase in overtime between October, 1910, and October, 1913?

Mr. Keefe: You are correct.

Mr. Stone: I would like to ask you one more question, Mr. Keefe. In your Exhibit No. 3, Sheet No. 5, where you show a summary in each class of service of the cost of the engineers' and firemen's requests if they had been applied to October, in the figures you show there of the increase in each class of service, does that include overtime, or is that a rate increase without the overtime?

Mr. Keefe: Sheet No. 5 is for each class of service, passenger and freight, the increase in each of those services for all of the proposals you have made, every proposal that you have made.

Mr. Stone: Including overtime, time and a half and everything else?

Mr. Keefe: Including every one of your provisions, the entire proposal.

Mr. Byram: Where do we find the item of increase in overtime?

Mr. Keefe: At Sheet 12.

Mr. Shea: What exhibit?

Mr. Keefe: Exhibit No. 3.

Mr. Stone: It commences on Sheet 8, does it not?

Mr. Keefe: That is overtime in passenger service. Sheet

No. 12 shows the increase in overtime between what the men actually received in October, 1913, compared with what they would have received had the men's proposal been in effect in that month.

Mr. Byram: That is found in column 7 of page 12?

Mr. Keefe: For through or irregular freight service, it is found in column 7; yes, sir.

Mr. Byram: Local or way freight, is that increase shown in column 14?

Mr. Keefe: Yes, sir.

Mr. Byram: That is all.

RE-DIRECT EXAMINATION.

Mr. Sheean: Now, Mr. Keefe, summarized for all lines, you get that on Sheet 2 of Exhibit 3, do you not, showing the total overtime actually paid in the month of October, 1913, where you have a summary of each article, present expense and proposed expense?

Mr. Keefe: Yes.

Mr. Sheean: So that when Mr. Stone was talking about the enormous amount of overtime, if you take the first two items there, overtime in road service, passenger service, and overtime in all other road service, it shows that in October, 1913, you paid as overtime in passenger service on all roads, $16,432.20; and in all other service, $410,818.41.

Mr. Byram: Where do you find those figures, Mr. Sheean?

Mr. Sheean: On Exhibit 3, Sheet No. 2, which is the summary for all lines.

Mr. Byram: Where is it on that sheet?

Mr. Sheean: The third and fourth paragraphs on the page.

Mr. Byram: Oh, yes.

Mr. Sheean: Overtime in road service, divided into passenger and all other classes. So that your total payment for overtime in all classes of service is about $427,000 on a total payroll of $7,214,000?

Mr. Keefe: Yes, sir.

Mr. Sheean: While you do not claim, Mr. Keefe, I take it that there is an exact percentage relationship between the speed basis shown in Exhibit 10, that we have just been talking about, and the payments of overtime, the proportion of the total pay-

roll which went to overtime, is not greatly out of line, if at all out of line, with the percentages shown on Exhibit 10, as to trains that operated at a speed of greater than ten miles an hour?

Mr. Keefe: They show for themselves, whatever they are, Mr. Sheean.

Mr. Sheean: That is the total overtime payments in all classes of service are shown there on Exhibit No. 3, and its proportion or relationship to the total payroll of $7,000,000 is also shown there?

Mr. Keefe: Yes, sir, it is shown on that exhibit.

Mr. Sheean: While on Exhibit 10, the speed of October, 1910, and of October, 1913, is shown?

Mr. Keefe: Yes, sir.

Mr. Sheean: You have, on Sheet No. 3, expense as proposed, and the increase caused by that is the additional expense that would be caused by the proposal now under arbitration?

Mr. Keefe: Yes. I am afraid that is where Mr. Stone got the idea of an enormous increase in overtime.

Mr. Byram: Well, it is an enormous increase, is it not?

Mr. Keefe: Yes, sir.

Mr. Stone: Well, if you get a little bigger power or speed up just a little bit faster, that will all be wiped out, won't it? It is gradually growing less as the power gets heavier, so it is fair to assume that it will soon be wiped out as the power gets heavier, is it not?

Mr. Keefe: I do not assume that overtime is getting any heavier, Mr. Stone.

Mr. Park: According to your statement, some of them are getting over the road quicker than they did three years ago?

Mr. Keefe: Yes, sir, that is a correct conclusion to reach from this exhibit.

Mr. Burgess: Are you through, Mr. Park?

Mr. Park: Yes.

Mr. Burgess: Mr. Keefe, I am somewhat confused, as an arbitrator. If you will help me out—

Mr. Keefe: I will do my best, Mr. Burgess.

Mr. Burgess: Column No. 11, does that set forth the total amount of trains run in the month of October, on sheet 2, exhibit 10, column 11?

Mr. Keefe: Column No. 11 of sheet No. 2, Exhibit No. 10,

is the number of trains that were run in the month of October, 1913, that accomplished their run at a speed greater than 10 miles an hour, or, on a mileage basis, generally speaking.

Mr. Burgess: I thought that was the total number of trains.

Mr. Keefe: No.

Mr. Sheean: Column 16, Mr. Burgess.

Mr. Keefe: Columns 16 and 11, add them together and you will get the total number of trains run.

Mr. Sheean: If you will pardon me, Mr. Burgess.

Mr. Burgess: Yes.

Mr. Sheean: Column 11 shows the number of trains under the heading that accomplished their run at a speed greater than 10 miles an hour, in October, 1913. Then column 16, number of trains that accomplished their run at a speed of 10 miles per hour or less.

Mr. Burgess: That would be—

Mr. Sheean: The totals for the entire system—the total of column 11, making the speed greater than 10 miles per hour, was 113,362, while those that made it at 10 miles or less was 35,905.

Mr. Burgess: And those, added together, would be a total of 149,207 trains run, would it not?

Mr. Sheean: Yes.

Mr. Keefe: 149,267 trains.

Mr. Burgess: Then under the heading of "Average Time Per Train in Hours," column 15, shows that it was 8.38; is that right?

Mr. Keefe: That 8.38 is the average time per train, in hours, for the 113,362 trains that accomplished their run at a speed greater than 10 miles an hour.

Mr. Burgess: That would indicate that he only used 8.38 hours running 100 miles?

Mr. Keefe: No, 116.06 miles.

Mr. Burgess: He ran 116 miles in 8.38 hours, did he?

Mr. Keefe: 116.06 miles was the average miles per train for those trains that were run at a speed greater than 10 miles per hour, or were on a speed basis.

Mr. Burgess: So that, if it was possible, which this exhibit unquestionably shows, and assuming that it is absolutely cor-

rect, we have a right to expect that the railroads can get their trains over the road, 116 miles and a fraction, in 8 hours and a fraction time?

Mr. Keefe: It is fair to assume that a certain portion of freight trains can and did operate over their road in that length of time, for going that distance.

Mr. Burgess: Yes, sir, and that certain portion, compared with the whole, is a very large portion, is it not?

Mr. Keefe: In exact figures, it is 78.30 per cent of the train mileage, or 75.95 per cent of the number of trains.

Mr. Burgess: In other words, about three-fourths of the trains can be run over a distance a fraction greater than 116 miles, in a space of time not greater than 8.38 hours?

Mr. Keefe: It shows that there were that many trains in October, 1913.

Mr. Burgess: And we have no reason to believe that the railroads cannot operate as successfully in the future as they have in the past?

Mr. Keefe: It all depends upon the restrictions that are placed upon operations, beyond the control of the management. It is to be hoped that they will be able to continue their ability to make their performance of October, 1913, as good or better than they did in that month.

Mr. Burgess: Well, if I recall correctly, Mr. Keefe, you placed before the Board an exhibit that showed something over six hundred and some odd million dollars that the railroads had expended for improvements, is that right?

Mr. Keefe: Yes, in three-year period.

Mr. Burgess: And it is fair to assume that would assist, to some extent, in the despatch of the trains over the divisions, would it not?

Mr. Keefe: Oh, yes, I think that everything in the way of improvements to the property has a tendency to—

Mr. Burgess: So that the assumption that the railroads can successfully operate their trains in regard to time in the future, seems to be well grounded, does it not?

Mr. Keefe: That they can operate a certain part of their trains. There is a certain portion of their trains that they did operate, and have operated, and no doubt always will operate at better speed and better conditions than other trains.

Mr. Burgess: Well, would this exhibit, that seems to be unquestioned, before us, which sets forth the trains that can be run, to the extent of three-fourths of the number of trains, a distance of 116 miles, in 8.38 of an hour, that would indicate then that if the Board saw fit to allow time and a half for overtime, that it would be an immaterial factor in the expense of the roads?

Mr. Keefe: The extent to which that would apply is indicated upon exhibit No. 3. It shows precisely what would have been the increase, in expense, by reason of your time and a half provision, and if you wish, I will read the figures.

Mr. Burgess: No. As set forth in No. 3, you say?

Mr. Keefe: We have shown in No. 3, to what extent the proposal of the men, asking for time and a half in freight service,—and it is shown on exhibit No. 3, sheet No. 2.

Mr. Burgess: Yes, I understand that, on 3, Mr. Keefe, but on an analytical examination of your figures on sheet No. 10, would not that be justified, that it would be an immaterial factor, if the Board granted time and a half for overtime?

Mr. Keefe: It would show, if they granted time and a half for overtime, it would affect approximately 25 per cent of the trains, as shown here, because that many, through freight trains —I am referring to now, were at a speed of less than 10 miles per hour.

Mr. Burgess: And those were all the trains that it would affect?

Mr. Keefe: No, there are the local freight trains.

Mr. Burgess: Well, we are speaking of through freight trains. It would only affect 25 per cent of the trains, according to an analytical investigation of the figures represented on sheet 10. Is that right?

Mr. Keefe: Yes, sir.

Mr. Burgess: Thank you.

Mr. Park: Mr. Keefe, what does that sheet show as to the amount of increase in overtime, caused by this submission?

Mr. Keefe: In all classes of freight service, $222,574.13.

Mr. Park: How much?

Mr. Keefe: $222,574.13, in the month of October alone.

Mr. Park: How much for through freight service?

Mr. Keefe: For through freight service, $75,948.61.

Mr. Park: How much would that be, per year, approximately?

Mr. Keefe: Between $750,000 and $800,000, approximately.

Mr. Park: So if the railroads were unable to operate under any different conditions than obtain here, that would be the amount that the submission would cause them to pay in overtime?

Mr. Keefe: Yes, sir.

Mr. Sheean: Mr. Keefe, have you ever heard of any suggestion, coming from any body of engineers and firemen, that the time of all men on the roads shall be averaged through the month, and in that way payments are arrived at as to what shall constitute overtime?

Mr. Keefe: Each trip is figured by itself.

Mr. Sheean: And on sheet No. 2, exhibit No. 10, showing the total mileage and the total number of trains operated on all these systems, in one month, from which it appears that in 8.38 hours an average of 116.6 miles was made, it is shown that upon the various roads, running down column 13, that the distances in which their districts are distributed, run all the way from 68 miles up to—let us see—that 68 miles seems to be—

Mr. Keefe: On the Texas & Gulf Railway.

Mr. Sheean: On the Texas & Gulf Railway. 168 miles, Pierre, Rapid City & Northwestern. Well, those are both small roads. Well, here is 143.70 miles on the Oregon Short Line. The average time was 10.87 hours, but the mileage that they averaged in through freight service there was 143.7, so that there is a wide spread, both in the distances and in the length of time, upon the separate roads, is there not, as shown on the detailed report?

Mr. Keefe: Yes, sir, the report speaks for itself, as to the variations in the time consumed for trains and the distances operated per train.

Mr. Sheean: And the distances between terminals, to some extent, reflected by the distances that trains operate in through freight service?

Mr. Keefe: Yes, sir.

Mr. Sheean: Now, this 8.38 is not taken by averaging the length of time on the different roads, but if this were an entire

system and operated under one management, taking all of the mileage made on all of these railroads, combining all of that mileage with all of the hours, this average of 8.38 is arrived at.

Mr. Keefe: Yes. That is not an average of the averages, however.

Mr. Sheean: On this Exhibit No. 10, Mr. Stone was talking about 55 per cent of your trains being local trains, Mr. Keefe. I do not quite follow that, as shown on sheet No. 1. If I have it correctly, the number of local trains shown on this summary is 81,490.

Mr. Keefe: Yes, sir.

Mr. Sheean: And the total number of trains shown at the bottom of the sheet is 482,834 trains.

Mr. Stone: About 33⅓ per cent.

Mr. Keefe: 499,854, is it not?

Mr. Sheean: That is 81,000 out of 500,000 trains, approximately, then.

Mr. Keefe: Yes.

Mr. Stone: Where do you get the 500,000?

Mr. Keefe: By the addition of the total trains shown on columns 5 and 7, adding 385,362 to 114,492, which makes a total of 499,854 trains.

Mr. Sheean: Well, the total trains in all classes of service are shown on this Exhibit and the question of reducing it to percentages is a mere matter of mathematics.

Mr. Keefe: Absolutely.

Mr. Sheean: I think that is all I wish to ask.

Mr. Stone: Will you please explain again how you get that number of trains?

Mr. Keefe: Adding the total number of trains, as shown on the bottom line of column No. 5, namely, 385,362, and 114,492.

Mr. Stone: I was taking the percentage of local as compared with through freight, and you are adding in passenger trains, miscellaneous service, pusher, helper, work, wreck, and everything else, are you not?

Mr. Keefe: I was asked the percentage of local trains to all trains run.

Mr. Stone: I was asking about the percentage of local trains to freight trains run.

Mr. Keefe: I could not follow your figures. Just deduct

213,456, which represents the passenger, from 385,362, leaves 171,906 trains other than passenger.

Mr. Sheean: And of that about 80,000 were local?

Mr. Keefe: No, that is not all of them.

Mr. Stone: I do not think your figures are right. Column No. 5 shows 113,362 through freight trains run.

Mr. Keefe: Yes.

Mr. Stone: Column No. 7 shows 35,905 freight trains run?

Mr. Keefe: Yes.

Mr. Stone: That makes 149,267 through freight trains run.

Mr. Keefe: Yes.

Mr. Stone: Column No. 5 shows, in the second line, 24,953 local trains.

Mr. Keefe: Yes, sir.

Mr. Stone: And column No. 7 shows 56,537 local trains.

Mr. Keefe: Yes.

Mr. Stone: A total of 81,490 trains?

Mr. Keefe: Yes, sir.

Mr. Stone: A total of through and local trains of 230,757?

Mr. Keefe: Yes, sir.

Mr. Stone: My percentage is wrong, because I did not add through and local trains together, but that is about somewhere between 25 and 30 per cent; 33⅓ per cent, perhaps.

Mr. Sheean: Then the guess that you asked Mr. Keefe to make the other day is not very different from the showing here; I think he guessed it at 25 per cent, when you insisted upon a guess.

Mr. Stone: Yes, for a man who knew nothing about his figures, it is a good guess.

Mr. Keefe: Thank you.

Mr. Stone: Well, you said you had not made any computation.

Mr. Keefe: I had not.

Mr. Sheean: Now, Mr. Keefe, you have also caused to be prepared an exhibit No. 11.

Mr. Keefe: That was introduced yesterday.

Mr. Stone: Yes, No. 11 was the form of the request.

Mr. Sheean: Exhibit No. 12.

Mr. Keefe: Yes.

(The document so offered and identified was received in

evidence and marked "Railroads' Exhibit No. 12, January 28, 1915.")

Mr. Sheean: Exhibit No. 12, Mr. Keefe, was compiled in what manner?

Mr. Keefe: Statement No. 12 was compiled from returns received from the railroads, when we undertook to ascertain the number of trains run, the number that exceeded the Sixteen Hour Law, and the number that were tied up because of the Federal Hours of Service Law, for the calendar year ending December 31, 1913.

Mr. Sheean: And you have divided the three headings of total number of trains run, trains that exceeded 16 hour limit and trains that were tied up on account of Sixteen Hour Law, into the two classes of passenger and of other road service, excluding yard and switching?

Mr. Keefe: Yes, sir.

Mr. Sheean: For that year, ended December 31, 1913, how many trains were run in passenger service?

Mr. Keefe: 2,277,749 passenger trains, as shown on the bottom of column No. 1.

Mr. Sheean: And of the 2,000,000 trains, how many were there in passenger service that exceeded sixteen hours on the road?

Mr. Keefe: As shown on the bottom of column No. 4, 910.

Mr. Sheean: And that is .04 of one per cent of the number of trains?

Mr. Keefe: Yes.

Mr. Sheean: That is also shown on the column just below the 910.

Mr. Keefe: Yes, sir.

Mr. Sheean: What was the total number of other road trains run during that time, column 2?

Mr. Keefe: 3,671,886.

Mr. Sheean: And of that, in freight, work, wreck and miscellaneous service, how many were on the road more than 16 hours?

Mr. Keefe: 33,978.

Mr. Sheean: Less than 1 per cent?

Mr. Keefe: Yes; .93 of 1 per cent.

Mr. Sheean: I call your attention to the reports of the

two Canadian roads, where there is no 16 hour law, as to the total number out of that 33,000, how many were on the two Canadian lines which are parties to this movement?

Mr. Keefe: There were 19,910 trains of freight, work, wreck, and miscellaneous, that exceeded the 16 hour limit, out of the total of 33,978 for all the lines in the movement.

Mr. Sheean: That is, over half of the total trains on the road beyond 16 hours are represented by those two lines, where there is no limitation other than the desire of the men as to when they shall tie up?

Mr. Keefe: Approximately 60 per cent of the total.

Mr. Sheean: I think the schedule of those roads, under which the men are permitted to determine their length of time on the road, was referred to?

Mr. Keefe: Yes, some remarks were made in connection with Exhibit 1, that they had that right, as I understood it.

Mr. Sheean: But they are the ones who determine whether or not they shall tie up?

Mr. Keefe: As I understand it; yes, sir.

Mr. Sheean: How many trains were tied up on account of the 16 hour law, but not exceeding the 16 hour limit, in passenger service?

Mr. Keefe: 540.

Mr. Sheean: And how many in other classes of road service?

Mr. Keefe: 34,951, as shown on the bottom of column No. 8.

Mr. Sheean: The tie-ups on the Canadian roads are nil, are they?

Mr. Keefe: They do not show. Of course, they have no 16 hour limit there, and had no tie-up because of that requirement.

Mr. Sheean: So that, considering the Canadian roads and all roads parties to the movement here, less than one per cent of the total trains operated were on the road between terminals more than 16 hours, and less than one per cent of the trains operated were tied up in order to comply with the hours of service law.

Mr. Keefe: Half of one per cent would be more near than one per cent.

Mr. Sheean: Well, I put it as less than one per cent in each of the situations.

Mr. Keefe: Yes.

Mr. Sheean: This was obtained from the railroads severally making the separation as to the trains that exceeded the 16 hours on the road?

Mr. Keefe: Yes.

Mr. Sheean: That does not necessarily mean any violation of the law, but there were causes which prevented their completing the run in 16 hours?

Mr. Keefe: Any reason, wherever a train was on the road in excess of 16 hours for any reason, it has to be reported to the Interstate Commerce Commission, and this is a summary of that data.

Mr. Sheean: And even in passenger service, because of some conditions, there were 910 trains that were more than sixteen hours between their terminals on the line, and 540 in passenger service, that had to be tied up because of the 16 hour law.

Mr. Keefe: Yes, sir.

Mr. Sheean: That, I take it, is due to some contingency or casualty, not because of any schedule, or large and heavy power that made the tonnage of these passenger trains so they could not complete their runs in 16 hours?

Mr. Keefe: I made no investigation as to the reasons at all.

Mr. Sheean: This was simply compiled in order to show the comparatively small proportion in the service, viewed as a whole, which the hardships related in individual cases by individual witnesses bear to the field as a whole?

Mr. Keefe: Yes.

Mr. Sheean: That is all.

CROSS EXAMINATION

Mr. Stone: Do you have reason to believe that these figures submitted in this exhibit are correct?

Mr. Keefe: Yes.

Mr. Stone: You show 34,888 trains tied up on these Western roads. If you multiply that by two, of course, because there are an engineer and fireman on each train—

Mr. Keefe: I show 35,491.

Mr. Stone: I should have said 34,888.

Mr. Keefe: That was not because they were tied up under the law. That was the number that exceeded the 16-hour limit.

Mr. Stone: Well, all right, that exceeded the 16-hour limit?

Mr. Keefe: Yes, sir.

Mr. Stone: And the number of trains that were tied up on account of the 16-hour law is 35,491?

Mr. Keefe: Yes, sir.

Mr. Stone: If you multiply that by two, it is really over 70,000 cases where the engineer and fireman were on duty and tied up under the law?

Mr. Keefe: Yes, there were that many trains, and I think it is a fair presumption that there was an engineer and fireman on every train.

Mr. Stone: How do you reconcile those statements with the statement put out by the Interstate Commerce Commission? Of course they show the fiscal year, each year ending June 30th. Have we any reason to believe their figures are not correct? Take, for example, the Atchison, Topeka & Santa Fe Railway Company for the fiscal year ending June 30, 1913, they show 2,800 employes on duty more than 16 consecutive hours.

Mr. Keefe: That number of employes, of course, is more than engineers and firemen. It includes all classes of employes, as I understand it; engineers, firemen, conductors, brakemen, messengers, baggagemen and any class of train employe who was on the road.

Mr. Stone: There are very few passenger trains that are delayed; the number of passenger trains you show is very small as compared with the freight trains and other classes of service that are tied up, are they not?

Mr. Keefe: Yes, the figures speak for themselves. There are 540 passenger trains as a whole compared with 35,491 compared with through freight trains, miscellaneous, and so forth.

Mr. Stone: And, of course, with your other exhibits, this takes in a comparison of all districts of the road. You do not know whether the man tied up had heavy power or light power—he was simply tied up?

Mr. Keefe: It states the whole situation as it actually existed.

Mr. Stone: Mr. Chairman, we have written to Washington, and I hoped to have it ready, but I have here a statement prepared by the Interstate Commerce Commission, being a statistical analysis of the carriers' monthly hours of service reports for the fiscal year ending June 30, 1913. I had hoped to have copies enough to file with the Board, and later on we hope to file a statement that will, I think, more than offset this exhibit. The extreme hours that some of the employes are tied up are startling, to say the least.

Mr. Sheean: This Exhibit No. 12 is simply confirmatory of the deduction arrived at by Mr. Lauck, in his exhibit, that once in every eighteen months, in the current operation of the road, if they come in the order of seniority, a railroad engineer might expect to encounter a tie-up or be on the road more than 16 hours?

Mr. Keefe: Yes, sir. When Mr. Lauck introduced his exhibit—I think it was 41 or 42—it was for a period of 18 months, and I compared it with the figures shown here, bearing in mind the two Canadian roads that he did not have, that is he did not have a full return on them, as I recall the report now, and bearing in mind this is for twelve months and only embraces the one period of light business and one period of heavy business, at least one year's business instead of two fall businesses, and one light business, as Mr. Lauck had, the figures are reasonably close together.

Mr. Sheean: And the purpose and object of the exhibit is simply to get the whole picture that the recital of an occasional hardship of an individual engineer or an individual fireman has shown, on the field as a whole, is of comparatively rare occurrence?

Mr. Keefe: Yes, sir. And it does point out very conclusively that the States' operation under the law is apparently very much more beneficial to the men than the operations in Canada, where the men are permitted to stay on the road as they desire. They seem to prefer the long hours there more than they do in the States.

Mr. Sheean: And let them determine when they want to tie up, themselves?

Mr. Keefe: Yes.

Mr. Nagel: I see that the roads in the hands of receivers seem to offend as often as other roads.

Mr. Keefe: These returns include the returns from those lines in the hands of receivers, and I have not made any analysis as between those lines and other lines.

Mr. Nagel: When the courts represent the Government in the management of the roads, they too have to meet these practical propositions?

Mr. Keefe: Yes.

Mr. Nagel: And sometimes fail?

Mr. Keefe: Yes, sir. There are operating conditions that no officer or man can control, that keep the men out on the road regardless of the desires of the men.

The Chairman: After all, the court has to rely upon the receiver and the receiver, in turn, has to rely upon the ability of the manager to properly conduct the affairs of the road?

Mr. Keefe: Yes, sir.

The Chairman: That is so?

Mr. Keefe: Yes, sir.

Mr. Nagel: And sometimes the whole system has to yield to circumstances?

Mr. Keefe: Yes, sir.

Mr. Shea: And, in the end, the employes bear the burdens.

Mr. Sheean: Mr. Keefe, I just wanted to make clear, if it is not perfectly clear, that this exhibit is not necessarily reported violations of the law, but the roads are required to make reports of anything that causes a train to be on the road longer than sixteen hours; whether excusable or non-excusable is for the Interstate Commerce Commission to determine?

Mr. Keefe: They have to report, yes, sir.

Mr. Sheean: And what you have included here is all the cases, without any attempt to ascertain the details as to whether or not it was carelessness or negligence, or unavoidable, or what caused any of these particular detentions?

Mr. Keefe: Yes, sir.

Mr. Stone: Then the fact that only once in eighteen months, in the ordinary lifetime of a locomotive engineer, this happens to him, according to your figures?

Mr. Keefe: Those are according to your own figures, Mr. Stone.

Mr. Stone: You just corroborated them, did you not?

Mr. Keefe: I say that these figures are reasonably accurate, and correspond with the data put in by Mr. Lauck, for an eighteen months period, considering that that eighteen months period took in two periods of heavy business, as compared with one period of light business, whereas this shows just one year.

Mr. Stone: Then the item is so small and it occurs so rarely, that our requests for continuous pay would not really amount to much?

Mr. Keefe: It amounts to just what it calls for on Exhibit No. 3, Sheet No. 2.

Mr. Stone: That is all, Mr. Chairman.

Mr. Sheean: What is the amount, Mr. Keefe? I am interested to know.

Mr. Keefe: $28,858.85, for all classes of service.

Mr. Sheean: For one month?

Mr. Keefe: For one month.

Mr. Stone: That is counting all of those baggagemen and express—

Mr. Keefe: No, sir, it is not. It is only counting what would go to the engineer and fireman.

Mr. Sheean: But if the four organizations whose joint agreement now covering the matter of compensation, under the Hours of Service Law, was modified in the same manner as this request proposes that it should be modified as to the engineers and firemen, the figures which are given here, only as to engineers and firemen, would be increased proportionately or relatively in some amount, at least?

Mr. Keefe: They would be increased, but I have made no computation and do not know how much they would increase, because I have never figured it out, but this represents only the engineers and firemen, two members of the crew, as compared with all the other balance of the members of the crew.

Mr. Sheean: And all the four organizations in train service are now covered by a uniform agreement as to compensation, because of compliance with the Hours of Service Law?

Mr. Keefe: Yes, sir.

Mr. Stone: Just one more question, if you please. Taking all of those "ifs" into consideration that counsel for the rail-

roads just spoke about, about how long would it take the other two train organizations, judging by our success, to have it modified so they would get the benefit of any award that might be handed down?

Mr. Keefe: I am no prophet, Mr. Stone.

Mr. Byram: Did you say that it was $28,000 it would cost the railroads in a year, or a month?

Mr. Keefe: One month.

Mr. Byram: Just for one month?

Mr. Keefe: Yes, sir, based upon the October, 1913, operations.

Mr. Sheean: That would cost them for engineers and firemen?

Mr. Byram: I mean just for engineers and firemen, would cost them $28,000 a month.

Mr. Sheean: Exhibit No. 13.

(The document, so offered and identified, was received in evidence and thereupon marked "Railroads' Exhibit No. 13, January 28, 1915.")

Mr. Sheean: It is hardly worth while starting on on that one, or is it, Your Honor? Separate exhibit. Better take that up now?

The Chairman: You might get it started.

Mr. Sheean: By the way, Mr. Stone, on this other, did you want the individual reports filed of those twelve from the different roads?

Mr. Stone: No, the Interstate Commerce Commission report is good enough for me.

Mr. Sheean: I had them filed—the reports of the individual roads here.

Mr. Stone: If the Board wants it. As far as I am concerned, I do not care about it.

Mr. Sheean: I do not want to cumber the Board, unless you want it, and I do not suppose the Secretary wants to be burdened with it. If you say you do not want it, I suppose both the Board and Secretary will be glad to be relieved of it.

Exhibit 13, Mr. Keefe, was compiled for what purpose?

Mr. Keefe: For the purpose of showing to the Board the extent to which the railways are now making payments to en-

gineers and firemen, for which no actual service, either in miles or hours, was made by the men.

Mr. Sheean: That is, having been shown by the preceding Exhibit No. 12, that it is of rare and exceptional occurrence that these hardships described by individual engineers, under the Sixteen-Hour Law, take place, that in connection with that and as a part of their schedule, that there are large sums of money where, neither the hours or the miles called for by the schedule can be required of the engineer and fireman in practical operation?

Mr. Keefe: Yes, sir.

The Chairman: We will take a recess until 2:30.

(Whereupon, at 12:30 o'clock P. M., a recess was taken until 2:30 o'clock, P. M.)

After Recess.

J. H. KEEFE was recalled for further examination, and having been previously sworn, testified as follows:

Mr. Sheean: On Exhibit No. 13, Mr. Keefe, the explanatory note shows, I think, the manner in which this information was compiled.

Mr. Keefe: Yes, sir.

Mr. Sheean: And its purpose was to present in connection with the occasional delays, or long time upon the road, a showing as to the amount paid during a year, where neither miles nor hours were given, equal to the minimum guarantee which the schedules provide?

Mr. Keefe: That is correct.

Mr. Sheean: And the examples 1 and 2 shown at the bottom of the page, Example No. 1 being where the engineer runs 80 miles in 7 hours, is allowed 100 miles as a minimum under a 100-mile or 10-hour rule, constructive mileage equals 20 miles, or 100 minus 80; and in Example No. 2 the engineer runs that 80 miles in 9 hours; is allowed 100 miles as minimum under a 100-mile or 10-hour rule; and constructive mileage equals one hour in that case, or 10 minus 9, is that correct?

Mr. Keefe: Yes, sir.

Mr. Sheean: Computing in each case, whichever is the

highest, the hours or the miles, in making the deduction as to the amount considered constructive?

Mr. Keefe: Yes, sir.

Mr. Sheean: During the year 1913, and by the way, that is the fiscal year of 1913, is it?

Mr. Keefe: Yes, sir.

Mr. Sheean: What was the aggregate amount paid in passenger service, where neither the equivalent in miles or hours, provided in the schedule, was given by the engineers and firemen?

Mr. Keefe: $269,303.03.

Mr. Sheean: And in freight service?

Mr. Keefe. $1,084,373.62.

Mr. Sheean: And in work train service?

Mr. Keefe: $49,362.09.

Mr. Sheean: Or a total in all classes of service of how much?

Mr. Keefe: $1,403,038.74.

Mr. Sheean: Was there any detail to which you wished to call attention in connection with this exhibit, Mr. Keefe?

Mr. Keefe: No, sir.

Mr. Sheean: You may cross examine, Mr. Stone.

RE-CROSS EXAMINATION.

Mr. Stone: In this work train service, Mr. Keefe, do you include in this $49,362.09, days that they laid away from their home terminal, and days that the crews did not work?

Mr. Keefe: No, sir.

Mr. Stone: You only take the roads where the work train was on a mileage basis?

Mr. Keefe: Only in cases where they were paid for service that they did not perform, either in miles or hours.

Mr. Stone: Take, for example, where through a bad day or something of that kind, your laborers do not work, is that day charged in this list?

Mr. Keefe: I would not say positively on that, Mr. Stone. I made no inquiry on that, and your question is the first one that came in my mind in connection with it. It is possible some of the lines may have construed it that way. I did not put

any interpretation on it of that kind in the instructions that went out.

Mr. Stone: But you did tell them to not include pay for Sundays when held away from home?

Mr. Keefe: No, I did not tell them to include that.

Mr. Stone: You don't know whether they did or not?

Mr. Keefe: I wouldn't say positively on that point, Mr. Stone, because I am not positive.

Mr. Stone: But it is a fact that it is almost universal, is it not, that men in construction service when held away from their home terminal, or on days that the laborers do not work, are paid for it? That is almost universal in all the schedules, is it not?

Mr. Keefe: I can examine our schedules on that, Mr. Stone. I know our own schedule provides for that on the G. C. & S. F., but I have not got a thorough knowledge of all the schedules. Exhibit 1 goes into that in detail.

Mr. Stone: Do you include in this number of passenger and freight miles, all the constructive miles that are allowed on the different runs for mountain mileage or mountain grades, or anything of that kind?

Mr. Keefe: No; that point I did inquire about, to make certain whether or not they included that, and they did not include the constructive mileage, because of so-called mountain differentials.

Mr. Stone: And in places where they do not have mountain differentials, oftentimes there is an arbitrary mileage allowance, perhaps not in mountain territory. Would that be included, if it is more than the actual miles?

Mr. Keefe: For example, what have you in mind?

Mr. Stone: Well, I have not any particular example, but I do know a number of places in the West, where, perhaps, there are no mountain grades, but where they are allowed a few extra miles because of some local condition or other.

Mr. Keefe: If it is allowed as a mountain differential, and to take the place of a mountain rate, it was not included. As to any other arbitrary allowances, I could not say at this time.

Mr. Stone: But in all this showing here, of this large amount, the fact remains that it is simply brought about by the guarantee of the minimum day, is it not?

Mr. Keefe: It is brought about by the provisions of the respective schedules, that require the payment of a certain minimum, in miles or hours, for services when called upon.

Mr. Stone: It is also a fact that the company could, if they could have so arranged their runs, or had been so inclined, have taken the miles, the full quota of 100 miles, or ten hours, in the different services, without any additional pay, could they not?

Mr. Keefe: That brings up the big question of moving terminals, again. I have in mind on our own road, one of the heavy divisions on the main line, the fourth division, between Cleburne and Gainesville, which is 93 miles in length. Every train that goes over that, we pay 100 miles for it. There is no possible way to get the 100 miles out of that, without running them through the terminal or making doubles, or turns; but unless we move our division from Gainesville to a point north, seven miles at least, we would not be able to get the 100 miles, and in that case it would involve the moving and construction of a terminal.

Mr. Stone: For each one of these unfortunate 22 per cent that you show in the other exhibit, you might get it out of him in hours, though, as 22 per cent of these freight trains do not get over the road in ten hours, or on a basis of less than 10 miles an hour.

Mr. Keefe: Through freight trains, yes, sir.

Mr. Stone: So in that case it would not count?

Mr. Keefe: In that case it would not be on this statement at all.

Mr. Stone: But on this particular sheet, is each one of those runs credited with seven constructive miles, on this exhibit?

Mr. Keefe: Only where he made it in less than the 9.3 hours.

Mr. Stone: So every place where 100 miles is paid, and the division is a few miles short, that is shown in this exhibit?

Mr. Keefe: That is for miles paid for, and for which no service was rendered, yes, sir; under this report.

Mr. Sheean: The instructions given, have you a copy of the form that was sent out?

Mr. Keefe: Yes, sir.

Mr. Sheean: I thought the explanatory note might make at perfectly clear. Did the instructions include this statement: "Constructive mileage should include all amounts paid ngineers, and firemen to make minimum days, or for which no ervice was rendered"?

Mr. Keefe: Yes, sir.

Mr. Sheean: And further, "Constructive miles should not nclude any mileage or allowance for which actual service was endered"?

Mr. Keefe: Yes, sir.

Mr. Sheean: So that, in connection with these examples, hose instructions went out on all of the forms sent to the roads?

Mr. Keefe: Yes, sir.

Mr. Stone: Just one more question. Are we to understand, Mr. Keefe, in these 24 roads where you say "No data vailable," that they do not have any constructive mileage, or ist did not make a report?

Mr. Keefe: Well, quite a number of them have no service f this kind—that is, the terminal lines, the switching lines.

Mr. Stone: They might pay hours, or something of that ind, might they not?

Mr. Keefe: I was referring to freight, passenger, work ervice. You see they have not any other class of service. Of ourse there are some like the Oregon Railway & Navigation 'ompany that did not have the data available to give it to us, s we asked for it.

Mr. Byram: You have not included in here any compensaion that was paid on an hourly basis, have you? That is, as I nderstand it, this is purely what is called in railroad slang 'bonus payment"?

Mr. Keefe: Constructive allowances.

Mr. Byram: Allowances beyond either the mileage or the ours?

Mr. Keefe: Yes, sir.

Mr. Byram: Not represented either by mileage or hours n the payment?

Mr. Keefe: Yes, sir.

Mr. Sheean: And the deduction in each case was made, whichever was the largest, the hours or the miles?

Mr. Keefe: Yes, sir.

Mr. Sheean: That is, that if the 80 miles were run
hours, you would show only the 1 hour as having been
structive?

Mr. Keefe: It would be only 1 hour, yes, sir.

Mr. Sheean: If the 80 miles were run in 6 or 7 hours,
would show the difference only between the 80 miles and
miles?

Mr. Keefe: Yes, sir.

Mr. Stone: Did you, in any of your exhibits, show
thing in regard to the hours of the yardmen, or is there any st
ment made up in regard to those who work by the hour?

Mr. Keefe: Yes, sir.

Mr. Stone: We would infer that because they are no
this, that there is no constructive or mileage—no construc
time—no arbitrary allowance paid for which they do not we

Mr. Keefe: We did not compile that for the yard serv
Mr. Stone. We only compiled it for the work service, the fre
service and the passenger service.

Mr. Sheean: Exhibit 14.

(The document, so offered and identified, was received in
dence and thereupon marked "Railroads' Exhibit No. 14,
uary 28, 1915.")

Mr. Sheean: Exhibit 14, Mr. Keefe, purports to show
number of steam locomotives, of various weights on drivers
service on all lines, in the year 1910 and in the year 1913.
what way was this information assembled?

Mr. Keefe: This information was assembled and cla
fied as to the weights on drivers, along the lines of the engine
and firemen's proposal. The data shown as to total numbe
locomotives and the number that are oil burners, for both ye
1910 and 1913, was received from the railroads in response
uniform blank that we sent out, asking for this class of infor
tion.

Mr. Sheean: And in the middle column, under the
headings of 1910 and 1913, you have carried out the per cen
the total number of engines which are comprised, in particu
classes?

Mr. Keefe: Yes, sir.

Mr. Sheean: In the very smallest class of engines, t
shows a decreasing percentage between 1913 and 1910?

Mr. Keefe: Yes, sir.

Mr. Sheean: The next classification also shows a decrease percentage, 80,000 to 100,000?

Mr. Keefe: Yes, sir.

Mr. Sheean: The next classification, 100,000 to 140,000, a ight decrease, 1913 over 1910?

Mr. Keefe: Yes, practically the same percentage of the tal number of locomotives were of a weight of 100,000 to 140,- 00 pounds on drivers.

Mr. Sheean: And as to each of the classes, as classified nder this proposal, the percentage to the total motive power of e road is extended in the two years?

Mr. Keefe: Yes, sir.

Mr. Sheean: And also as to each of those, the number that re oil burners in each class?

Mr. Keefe: Yes, in each year, each period of time.

Mr. Sheean: Is there anything that you wish to call atten- on to, particularly, in reference to this exhibit?

Mr. Keefe: I do want to call attention to the fact that it ows, in the year 1910, there was a total of 2,908 additional loco- otives over 1910, or approximately 12 per cent, but that the crease in the number of oil burners, from 3,048 to 4,148, or 1,100, equivalent to a 36 per cent increase in the number of oil rners that were in service, 1913 as against 1910, and that the rcentage of oil burners of the total number of locomotives was ver 15 per cent.

Mr. Sheean: I think that was all I wished to ask about this hibit, Mr. Stone.

RE-CROSS-EXAMINATION.

Mr. Stone: This is corrected up to what time, Mr. Keefe?

Mr. Keefe: That was for the year 1913, and our inquiry as sent out in the first part of 1914, January or February. here was no specified date, but whatever the classification of comotives was that was in effect on the roads at that time, they ere to compile it from that. There were no uniform dates as the dates of those classifications.

Mr. Stone: And any heavy power that has been purchased nce, by any of these roads, of course would not show here?

Mr. Keefe: The next exhibit, Mr. Stone, goes more in details as to the effect up to and including November, 1914.

Mr. Stone: According to this exhibit, Mr. Keefe, wh per cent of the number of locomotives in service would requ two firemen under the Firemen's request?

Mr. Keefe: Somewhere around 170,000 to 200,000 poun it is not shown, but there is a dividing line there; it would somewhere in the vicinity of 10 or 15 per cent.

Mr. Stone: What per cent?

Mr. Keefe: I judge, just looking at it, 10 or 15 per ce You take from 200,000 pounds and heavier.

Mr. Stone: Yes.

Mr. Keefe: All of that would be in; I have not add that up.

Mr. Stone: Would all that be in; isn't a lot of that p senger service, and are not a lot of those locomotives oil bu ers?

Mr. Keefe: That is true; you are correct. I have made calculation on it. You are correct, however; it includes the to locomotives. The next exhibit will probably show a little more on that, Mr. Stone.

Mr. Burgess: Mr. Keefe, these tables do exhibit a gene tendency to increase the size of the locomotives, do they n

Mr. Keefe: Only in the intermediate classes, Mr. Burge It does not indicate that the enormously large power is be constructed or being put into service; but with the intermedi class you might say from 140,000 to 225,000, there is more that class of power.

Mr. Burgess: Suppose we compare it. In 1910, there w 7,028 locomotives, weighing 100,000 pounds and less than 140,(pounds on drivers.

Mr. Keefe: Yes, sir.

Mr. Burgess: In 1913 there were 7,659?

Mr. Keefe: Yes.

Mr. Burgess: In 1910 there were 5,016 locomotives wei ing from 140,000 to 170,000 pounds?

Mr. Keefe: Yes.

Mr. Burgess: In 1913 there were 6,258?

Mr. Keefe: Yes.

Mr. Burgess: In 1910 there were 2,645 locomotives, with weight on drivers from 170,000 to 200,000 pounds?

Mr. Keefe: Yes.

Mr. Burgess: In 1913 there were 3,183?

Mr. Keefe: Yes.

Mr. Burgess: In 1910 there were 456 locomotives weighing from 200,000 to 225,000 pounds on drivers?

Mr. Keefe: Yes, sir.

Mr. Burgess: In 1913 there were 1,577?

Mr. Keefe: Yes.

Mr. Burgess: In 1910 there were 167 locomotives weighing 225,000 to 250,000 pounds on drivers; and in 1913 there were 423?

Mr. Keefe: Yes.

Mr. Burgess: In 1910 there were 82 locomotives weighing from 250,000 to 300,000 pounds?

Mr. Keefe: Yes.

Mr. Burgess: In 1913 there were 89?

Mr. Keefe: Yes.

Mr. Burgess: In 1910 there were 163 locomotives weighing from 300,000 to 400,000 on the drivers, while in 1913 there were 304?

Mr. Keefe: Yes.

Mr. Burgess: In 1910 there were seven locomotives weighing 400,000 pounds on the drivers?

Mr. Keefe: Yes.

Mr. Burgess: In 1913 there were 67 locomotives?

Mr. Keefe: Yes.

Mr. Burgess: So there is a general tendency to increase the weight on the drivers within those periods?

Mr. Keefe: Yes; but the greatest increase, of course, was in those locomotives, as I have said, weighing from 140,000 to 225,000, in what might be termed the intermediate weights, and not of the large weights on drivers.

Mr. Burgess: Would this not be a heavy increase, from 225,000 to 250,000 pounds on the drivers? In 1910 there were only 167, and in 1913 there are 423; that is a very large percentage of increase, is it not?

Mr. Keefe: Yes; but it is not as large as the increase from 140,000 to 170,000, of 1,200 locomotives.

Mr. Burgess: It is not as large an increase?

Mr. Keefe: That is, in numbers; I have not attempted to figure it in per cents.

Mr. Burgess: Does not this per cent show right in the next column?

Mr. Keefe: That is, of the total number only; that is not the percentage of increase.

Mr. Byram: Mr. Keefe, do not those larger engines carry a higher rate of pay to the firemen and engineers?

Mr. Keefe: Yes, sir; generally speaking, I understand they do.

Mr. Byram: As the size of the engine grows, when they are introduced, that is, when a large engine is introduced, the fireman and engineer usually get a higher rate of pay for handling that larger engine, do they not?

Mr. Keefe: Up to a certain size of engine; yes, sir.

Mr. Sheean: Anything above 215,000 pounds on drivers is fixed by the engineers' and firemen's agreement of 1910?

Mr. Keefe: A uniform rate.

Mr. Sheean: Anything above that as taking a higher rate.

Mr. Keefe: Yes, sir.

Mr. Stone: Does the rate of the engineer and fireman increase in proportion with the tractive power of the locomotive?

Mr. Keefe: I have not figured that out on that basis, Mr. Stone.

Mr. Stone: It also shows, does it not, very clearly, that none of the railroads at the present time are buying power of less than 100,000 pounds on drivers?

Mr. Keefe: I do not know whether they are or not, Mr. Stone.

Mr. Stone: Does not this show it?

Mr. Keefe: This shows a decreased number, but it does not show that none are being purchased of that size. I do not know, frankly.

Mr. Stone: But it does show that class of service is rapidly growing less, does it not?

Mr. Keefe: It shows there is a decrease of about 5 per cent of the total number of locomotives that are less than 80,000 pounds weight on drivers. In other words, there are 4,972 of that weight on drivers in 1910, and 4,192 in 1913.

Mr. Stone: I am satisfied that if you had brought this up to date, January 1st, 1915, it would have made a much more striking example.

Mr. Sheean: We will be very glad to make further inquiry on that, if there is any change in the classification. I suppose your local chairman would know of any particular road or roads where there is any great change in motive power in that length of time.

Mr. Stone: All the new equipment going into service is of this heavier type. I do not know of any going into service that is less than 200,000 pounds on drivers, in the last year.

Mr. Sheean: I have been under the general impression that they were not buying very much in the last year, Mr. Stone, but if you think it would be desirable to send out inquiries to bring this up to date, we would be glad to do it.

Mr. Stone: I do not know any of the locomotive works that have shut up entirely; they are still turning out a few.

Mr. Sheean: I suggest you make a note of that now, Mr. Keefe, to send out a letter to the roads, as to the locomotives which have been purchased, and the weight on drivers, since the date of this exhibit.

Mr. Stone: While you are asking for that information, I would like to add to it that you get the builder's weight and the stenciled weight of the engine.

Mr. Sheean: Yes, add that in the same request.

Exhibit 15.

(The document, so offered and identified, was received in evidence and thereupon marked "Railroads' Exhibit No. 15, January 28, 1915.")

RE-DIRECT EXAMINATION.

Mr. Sheean: Mr. Keefe, Exhibit 15 consists of sixteen sheets. I wish, in order that the Board may get a general idea of the information which has been assembled in the different sheets, and where it is summarized, that you would at first explain to us the general scope of the exhibit.

Mr. Keefe: By reference to Sheet No. 2, we show on Sheets 2 to 11 inclusive, the number and classification of freight and passenger locomotives in service; also the number equipped with labor-saving devices, for each individual railroad, divided

as to weights on drivers, in line with the proposal of the engineers and firemen. In addition to the number of locomotives and their type, with weight on drivers, and size of cylinders, we have shown the number of each class of locomotives that are oil burners and the number that are equipped with labor-saving devices, separated as between superheaters, brick arches, power coal pushers, hopper bottoms, power stokers, automatic door openers, power grate shakers, power reverse gears, sliding doors, sliding bottoms, air dump or hopper ash pans.

Mr. Sheean: Each railroad, from Sheet 2 to 11, inclusive, shows by individual railroads this information that you have just outlined?

Mr. Keefe: Yes, sir.

Mr. Sheean: And Sheet No. 1 summarizes the information as to all of the railroads?

Mr. Keefe: Yes, sir.

Mr. Sheean: Now, as to the number of locomotives and the classification of those locomotives, that is taken from the classification lists—the current classification lists of the various railroads?

Mr. Keefe: Yes, sir, one that was current as of November, 1914, which was the last date we could secure one.

Mr. Sheean: I wish you would explain just what is meant by "Locomotive classification lists"?

Mr. Keefe: Each railroad publishes a book, generally in blueprint form, similar to the one for the Chicago & Alton that Mr. Burgess had the other day.

Mr. Sheean: And have you those classification lists for those various roads here?

Mr. Keefe: We have them for each railroad.

Mr. Sheean: Would you file, or offer for file, or leave here? Just leave them with Mr. Milstead. They will be left, Mr. Stone, until you indicate whether you want them or not.

Mr. Stone: I think I have a complete set of them at the present time.

Mr. Sheean: I assumed so, but we will leave them, Mr. Burgess.

Mr. Stone: A superficial view of them would suggest the idea that they ought to standardize their blueprints, at least.

Mr. Sheean: Now, the classification lists give the informa-

tion as to the total number of locomotives, and the other information shown as to each of the roads severally and as to all the roads combined. That is, the number equipped with superheaters, with brick arches, and the various other devices, was furnished by the roads severally.

Mr. Keefe: Yes, sir.

Mr. Sheean: Now, in the division into service, as between freight and passenger and switching or yard service, how was that arrived at?

Mr. Keefe: That was arrived at from the separation shown on the classification. That is the designation for which the locomotive was purchased, or was built, whether it was for freight or passenger service, or switching service, or was a Mallet. Those are three separations we have made.

Mr. Sheean: And these classification lists, generally, show whether or not they are classified as a freight, or passenger, or switching engines?

Mr. Keefe: Yes, sir.

Mr. Sheean: Exhibit No. 1, Mr. Keefe, there was shown, from information furnished by the roads, the number of engines normally in use, and the class of service in which they were in use?

Mr. Keefe: Yes, sir.

Mr. Sheean: Are there any differences as to the total number of engines shown on this report as per the classification list, and as to the service in which actually used?

Mr. Keefe: There is a slight difference; the number of engines as shown in Exhibit No. 1 was 27,059.

Mr. Sheean: This one shows the total number as 27,221.

Mr. Keefe: Yes, a difference of 162. That is brought about because on exhibit No. 1 there were some of the switching lines that were not shown. This one includes all of them, including the switching lines. For instance, the Chicago & Western Indiana has 121 locomotives included in this exhibit that were not included in Exhibit 1. The same is true of the Weatherford, Mineral Wells & Northwestern. There were four locomotives shown in this one that were not shown in Exhibit No. 1. And the Denison & Pacific Suburban shows one locomotive not shown in Exhibit 1; and the Pierre & Ft. Pierre Bridge Railway Company shows one locomotive that was not shown in the other.

Also there was a difference of 38 locomotives on the St. Louis, Brownsville & Mexico, between this report and Exhibit No. 1. I have not been able to run down just that difference of 38, but the road reported two different numbers of engines on each report. They did not make the check to see that one report agreed with the other, as they were instructed.

Mr. Sheean: That report shown in Exhibit No. 1 here shows the service in which they were in use at the time they were reported?

Mr. Keefe: Yes, sir.

Mr. Sheean: Now, treating the roads collectively, Mr. Keefe, of the total locomotives 27,221, how many of them were oil burners?

Mr. Keefe: 4,272.

Mr. Sheean: How many are equipped with superheaters?

Mr. Keefe: 4,852.

Mr. Sheean: How many with brick arches?

Mr. Keefe: 9,512.

Mr. Sheean: And power coal pushers?

Mr. Keefe: 1,033.

Mr. Sheean: Hopper bottom tenders?

Mr. Keefe: 4,098.

Mr. Sheean: Power stokers?

Mr. Keefe: 50.

Mr. Sheean: Automatic door openers?

Mr. Keefe: 3,597.

Mr. Sheean: Power grate shakers?

Mr. Keefe: 192.

Mr. Sheean: And power reverse gears?

Mr. Keefe: 1,613.

Mr. Sheean: And with side door, slide bottom, air dump, or hopper ash pans?

Mr. Keefe: 22,949.

Mr. Sheean: The detail of these roads and whether or not possessing the equipment specified, and the particular type or class of engine thus equipped, is shown in detail on these sheets 2 to 11 inclusive?

Mr. Keefe: Yes.

Mr. Sheean: Before passing to the part of the exhibit

following page 11, was there anything there to which you wished to direct attention at this time?

Mr. Keefe: Nothing other than the fact that the larger locomotives, that is the locomotives of heavier weight on drivers, are the ones that are more generally being applied or being fitted with the labor saving devices. That is, it shows here that as the locomotives increase in weight on drivers, there is a tendency to provide all of the labor saving modern devices that are in effect.

Mr. Sheean: Under the classification as proposed here, it shows as to each of those classes just what the equipment in this respect is, and then, severally, as to the roads, also what has been done by the roads?

Mr. Keefe: Yes.

Mr. Sheean: Now, the part of the exhibit following sheet 11 comprises what?

Mr. Keefe: It shows, by individual railways, the switching and Mallet locomotives, from sheet 12 to 16 inclusive. It shows the same information for the switching and Mallet locomotives as is shown for the freight and passenger locomotives on sheets 2 to 11 inclusive.

Mr. Sheean: And as to each of the railroads there is shown the weight on drivers of the switching engines, as well as the Mallet engines, that is, as to those roads which have Mallets, and the size of cylinders, and whether or not they are equipped with these various devices?

Mr. Keefe: Yes.

Mr. Sheean: The detail thus shown from sheet 12 to and including sheet 16, is also summarized on the first sheet of the exhibit in connection with the road engines?

Mr. Keefe: Yes.

Mr. Sheean: Is there anything further to which you wish to direct attention in connection with Exhibit 15?

Mr. Keefe: No, sir.

Mr. Sheean: You may cross-examine, Mr. Stone.

RE-CROSS EXAMINATION.

Mr. Stone: Just why, Mr. Keefe, has it been found necessary? You say the tendency is so. Why is the tendency to

equip the heavier power with these so-called labor-saving devices?

Mr. Keefe: To make them modern and to have up-to-date power, and to minimize the labors of everybody connected with them.

Mr. Stone: Is it to minimize the labor, or is it because you have gone beyond the limit of the human factor?

Mr. Keefe: Why, I am not a mechanical expert, Mr. Stone. My opinion as a layman is that we have not reached the point yet.

Mr. Stone: Will there be some mechanical man on the stand, to explain just how these different articles enumerated here are labor-saving devices, or will you explain it?

Mr. Keefe: There will be a mechanical department representative on the stand.

Mr. Stone: To take up these questions?

Mr. Keefe: If you care for it, yes.

Mr. Sheean: You mean just what the effect or purpose—

Mr. Stone: In regard to how—

Mr. Sheean: Superheaters, brick arches, and so on.

Mr. Stone: Hopper bottom tenders, power reverse gear; these hopper ash pans. I want to know the effect of them.

Mr. Sheean: Yes, I will be very glad to have them fully explained to you, Mr. Stone.

Mr. Stone: If I understand, the claim is made that all these are labor-siving devices. So the heading shows.

Mr. Sheean: Yes.

Mr. Stone: Is it not a fact that it is necessary, in order to operate the modern power successfully, that they be equipped in this way?

Mr. Keefe: Undoubtedly, there is a necessity for equipment in that way, Mr. Stone. I would prefer, however, for our mechanical man to answer that question. I do not want to qualify as a mechanical expert.

Mr. Stone: But it is very evident that many of the things enumerated here are simply a part of the modern equipment, up to date. Of course, if you are going to put a mechanical man on, we will take that question up.

Mr. Sheean: Yes, I will promise you, Mr. Stone, that a mechanical man will go on the stand, as to what is done by each

one of these devices, and its purpose and effect in actual operation. I suppose Mr. Keefe could qualify on oil, as to what they do with oil.

Mr. Stone: I am not sure whether he could even qualify on that, as an expert, burning oil.

Mr. Sheean: On the question of whether it saves any work for the fireman.

Mr. Stone: I think I heard you express it several times, that all he did was to turn the oil plug.

Mr. Sheean: I have expressed no opinion, I think.

Mr. Keefe: I have had quite a good deal of experience during my connection with the railroad, with oil burners. We have had nothing, practically, but oil burners since I have been with the road.

Mr. Stone: Did you ever take an oil hose connection down, between the engine and tank and take out the inside lining?

Mr. Keefe: I did not.

Mr. Stone: Then you have some experience due you yet in that line of work. That is all, Mr. Chairman.

Mr. Sheean: Exhibits Nos. 16, 17, 18, 19, and 20.

(The documents, so offered and indentified, were received in evidence and thereupon marked, respectively, "Railroads' Exhibits Nos. 16, 17, 18, 19, and 20, January 28, 1915.")

RE-DIRECT EXAMINATION.

Mr. Sheean: Mr. Keefe, Exhibit 16 consists of four tables, tables 1 and 2 being compiled from the reports of the Bureau of Census, covering the area and density of population, in what the Interstate Commerce Commission, for purposes of railroad operation, has divided into the three territories of districts, Eastern, Southern and Western districts?

Mr. Keefe: Yes.

Mr. Sheean: Table 3 shows the population per mile of line in the three territories, and table 4, the population per mile of main track, combining the population as shown by the Bureau of the Census and the miles of track as shown from the statistical reports of the Interstate Commerce Commission.

Mr. Keefe: Yes, sir.

The Chairman: What particular fact do you wish to establish by this?

Mr. Sheean: The question of the density of traffic, your Honor, upon the question of trainload and efficiency.

Mr. Chairman: Both as to passenger and freight train load?

Mr. Sheean: Yes. Population, we think affects both the freight and passenger.

Now, as to population, the total figures for the United States and for each of the districts is shown during the entire period from 1900 on to 1912, and the percentage relationship between the different districts.

Mr. Keefe: Yes, it shows that in the Eastern territory they are increasing in percentage; in other words, they are having a greater per cent of the total population in the Eastern district. For instance, in 1900 it was 41.8 per cent of the total population, and in 1912 it had increased to 44.5 per cent of the total population, as per table 1. While in the Western district, in 1900, it was 36.4 per cent of the total population, while in 1912, it has declined to 35 per cent of the total population.

Mr. Sheean: Or, in the last three year period, 1910 to 1912, the growth of the East in density of population has far outstripped the West.

Mr. Keefe: Yes, the increases in the Eastern district being practically, 1912 over 1910, while the decrease has been in the Western district, from 38 per cent in 1910 to 35 per cent in 1912.

Mr. Sheean: And the Southern district, during this period, going back as far as 1907, keeping about the same relative proportion of total population, through all this time?

Mr. Keefe: Yes.

Mr. Sheean: While the East has progressed at the expense of the West?

Mr. Keefe: Yes.

Mr. Sheean: On a percentage basis?

Mr. Keefe: Yes.

Mr. Sheean: As to the area shown on table 2, what changes are shown?

Mr. Keefe: It shows the density of population per square mile of country has increased from 107.8 per cent in 1900 to 129.6 per cent in 1912, and from 128.7 per cent in 1910 to 129.6 per cent in 1912, while in the Western district the increase of 1912

over 1910 was 15.2 compared with 12.3, but in 1912 over 1910 there was an actual decrease of the density of population per square mile.

Mr. Sheean: There is pasted in the cover of my book, and was that done likewise as to each one of them, a map showing what these districts are?

Mr. Keefe: Yes.

Mr. Sheean: And on the front page of the binder of each one of these exhibits, the relative importance in area is indicated, and the numbers there are the old Interstate Commerce Commission numbers as they existed up to the time they set up the three districts, the Eastern, Southern and Western.

Mr. Keefe: Yes.

Mr. Sheean: As to the population per mile of line operated, what is the situation in the three territories?

Mr. Keefe: In the three territories, it shows in the Eastern district the population per mile of line is increasing, both comparing 1900 with 1912, and comparing 1910 with 1912, while in the Western district it is decreasing, both as to 1900 compared with 1912, and 1910 compared with 1912.

Mr. Sheean: Table 3 is per mile of line. Now, just what is the difference between table 3 and table 4?

Mr. Keefe: Table No. 3 is on the basis of per mile of line that is counting the single main line, or the length of the railroad; while table No. 4 is the population per mile of main track, based upon the mileage of the main track. As an illustration of that, the Pennsylvania Railroad, on that territory where they have four tracks, in table 3 would only be counted once, but in table No. 4, would be counted four different times.

Mr. Sheean: So that, as comparing the per mile of line basis, the opportunity is given of considering the four track railroad in Table 4, as the equivalent of one railroad with four times the mileage, that is, the single track road?

Mr. Keefe: Yes, sir.

Mr. Sheean: But on either basis of comparison, the Western district is below both the East and the South?

Mr. Keefe: Yes.

Mr. Sheean: In population, per mile of line, or per mile of main track?

Mr. Keefe: Yes.

Mr. Nagel: Both the South and the West have suffered a decrease?

Mr. Keefe: Per mile of line, yes, sir, but the East has shown an increase.

Mr. Nagel: I noticed that.

Mr. Keefe: The Southern district and the Western district have both shown a decrease of population per mile of line.

Mr. Nagel: Is there a ready explanation for that showing?

Mr. Keefe: No, excepting it might be that both of those countries may have increased their railway facilities much faster than in the East.

Mr. Nagel: In other words, it is an increase of railroads and not a decrease of population?

Mr. Sheean: Yes, the miles of line per population.

Mr. Nagel: Although in the West, the emigration from the United States to Canada might have had some effect?

Mr. Sheean: Yes, your Honor, as to Table 1 and 2 considered only on population, the density of population, considered merely as population, is greater in the East; but on the comparison per mile of line, of course the building of additional lines of railroad in a larger percentage relationship to the lines of railroad that existed before, there the increase in population would, or might, affect Tables 3 and 4. It is not intended, of course, to imply that the miles of road have remained the same during these years, but it is simply whether or not the building of new lines has been faster or slower.

Mr. Nagel: Both of these influences might be at work?

Mr. Keefe: Yes.

Mr. Sheean: Both might be at work, and there is no effort to segregate it in this table.

With your permission, Mr. Stone, I will run through all these I handed out last because they bear more or less upon the same subject.

Mr. Stone: All right.

Mr. Sheean: Exhibit 17, Mr. Keefe, shows what?

Mr. Keefe: Tables 1, 2, 3 and 4 show the miles of line operated both as to single track, main track, yard sidings, and total for all tracks in the United States in the Eastern, Southern, and Western districts separately; while Tables 5 and 6 show

area per mile of line, or the miles of line per 1,000 square miles of area.

Mr. Sheean: 100 square miles of area.

Mr. Keefe: 100 square miles of area.

Mr. Sheean: The first separation during these years, as between the single track—

Mr. Keefe: The single track is the miles of line.

Mr. Sheean: Miles of line?

Mr. Keefe: Yes.

Mr. Sheean: That is, a four track railroad would count as four miles of single track?

Mr. Keefe: Yes.

Mr. Sheean: And table 2, the miles of track operated is the miles of main track?

Mr. Keefe: Yes.

Mr. Sheean: Table 3 shows the yard track and sidings?

Mr. Keefe: Yes.

Mr. Sheean: A table of all tracks, whether main or siding?

Mr. Keefe: It is the total of columns 2 and 3.

Mr. Sheean: Table 5 and Table 6 set up no—well, in the reverse relationship, putting it either way, the miles of line per 100 square miles of area, or the square miles of area per miles of line.

Mr. Keefe: Either way that you want to consider it.

Mr. Sheean: In the three districts and also for the entire United States?

Mr. Keefe: Yes, sir.

Mr. Sheean: That shows in another way, the same information which is assembled on the first page of the exhibit?

Mr. Keefe: Practically the same viewpoint is reached.

Mr. Sheean: As to density of population in the three territories, and the relationship of miles of track operated to population.

Mr. Keefe: It shows in the West—

Mr. Sheean: I should not say population. As to area.

Mr. Keefe: As to area. Of the total additional miles, or total miles of line operated, the West is keeping pace with the other portions of the country and providing for the facilities for transportation.

Mr. Sheean: Now, Exhibit 18, Mr. Keefe, was compiled in what manner and to show what relationship?

Mr. Keefe: A number of the lines that are members to this movement, keep their statistics in such shape as to show the relative density of their main and branch lines, and for such lines as shown, that have their statistics in that manner, we have made a compilation and have shown it on this sheet, for all the lines.

Mr. Sheean: Are these all of the railroads, parties to this arbitration, which have separated in their accounting the main and branch lines, so as to be able to furnish us the information?

Mr. Keefe: That is, as to the separation of their freight traffic and also their train miles. There were more lines that were able to tell how many branch lines and main lines they were operating, but they did not keep their train statistics in such shape as to show the relative percentage of the main lines and branch lines.

Mr. Sheean: Now, first taking the columns which show the miles of road operated, and the relationship between main and branch line, of the roads there shown, the total per cent, if they were all one system—23.65 of their total mileage of the roads there shown is in branch mileage?

Mr. Keefe: Yes.

Mr. Sheean: And that varies, as between the different roads, from as high as 57 per cent—

Mr. Keefe: 59.95 per cent, down to 7.6 per cent.

Mr. Sheean: Practically all the lines in the movement have branch mileage, have they not, Mr. Keefe, or a great many of them?

Mr. Keefe: A great many of them have branch mileage. As to whether all of them have or not, I could not say, offhand.

Mr. Sheean: But was inquiry made of all as to whether or not they kept separate the train mileage and tons of freight carried, separating it as between main and branch line?

Mr. Keefe: Yes, sir.

Mr. Sheean: And these are the only roads which could furnish that separate information?

Mr. Keefe: Yes, sir.

Mr. Sheean: Now, taking these roads as a whole, what

is the situation as to the burden of traffic which is borne by the main and branch lines?

Mr. Keefe: For these particular railroads, which have 43.65 per cent of their total mileage in branch line mileage, they have 19.34 per cent of their train miles on these branches, and of the freight traffic handled, they have only 7.07 per cent of their freight tons handled on these branches.

Mr. Sheean: That is, 43.65 per cent of the total mileage of these roads here, only carries 7.07 per cent of the tons of freight?

Mr. Keefe: Yes.

Mr. Sheean: Of the ton miles of the system?

Mr. Keefe: Yes.

Mr. Sheean: Or, taking the first line there, the Santa Fe, East Lines, 57.97 per cent of its mileage carries only 16.9 per cent of the ton miles.

Mr. Keefe: Yes.

Mr. Sheean: And the relationship on each of these roads as to the per cent of mileage which is branch and the per cent of the traffic which that branch handles, is shown as to each railroad.

Mr. Keefe: Yes.

Mr. Sheean: In addition to showing the per cent of the total which is carried in ton miles, you show in the center column the per cent of the train mileage made on the branches?

Mr. Keefe: Yes.

Mr. Sheean: Well, viewing the railroads as one system, Mr. Keefe, does it show that the branch mileage makes less proportionately of the train mileage than the main line, or the system treated as a whole, I should say?

Mr. Keefe: I don't believe I understand your question, Mr. Sheean.

Mr. Sheean: Strike out the whole question. Just tell us in your own way, Mr. Keefe, what part of the burdens the branch mileage bears.

Mr. Keefe: In the total train mileage, the branch line has 19.34 per cent of the total train mileage. As to the tonnage handled, the branch lines have 7.07 per cent of the total tons of freight carried one mile.

Mr. Sheean: So that on all of these roads shown on

Exhibit 18, the traffic on the branches is very much lighter than the traffic on the main lines?

Mr. Keefe: Yes, sir.

Mr. Sheean: Very much less, both in the number of miles made and also in the tonnage handled?

Mr. Keefe: Yes, sir.

Mr. Sheean: The variations between the different roads as to the per cent of their system which is branch mileage and the per cent of their mileage which is made on the branches and the per cent of the freight which is carried on the branches, is shown as to each railroad which thus separates its accounts?

Mr. Keefe: Yes, each railway company has a different percentage of the total train miles, as well as a different percentage of the tons of freight carried one mile, depending entirely upon their local conditions and the territory which they traverse.

Mr. Sheean: Is there anything further in connection with this exhibit to which you wish to direct attention?

Mr. Keefe: No, sir.

Mr. Burgess: Mr. Keefe, did I understand you to say that the purpose of this exhibit was to show that the railway facilities in the West had kept pace with the increase in population?

Mr. Keefe: That is, 16 and 17, yes.

Mr. Burgess: That is all I wanted to know.

Mr. Keefe: Yes, those were the preceding exhibits, 16 and 17.

Mr. Sheean: Exhibit 19 makes comparison in the West, East and South as to the average freight train load, tons per mile, from 1910 up to 1913. Now, this information is taken from the statistical reports of the Interstate Commerce Commission?

Mr. Keefe: Yes, as filed by the individual railroads.

Mr. Sheean: Going back to 1910, what was the situation as between West, East and South in the average train load at that time?

Mr. Keefe: In 1910, the average freight train load in the Western district was 325.9 tons, while in the Eastern district it was 459.8, while in the Southern district it was 324.2.

Mr. Sheean: In 1910, the average freight train load in

the West was a little bit higher than in the South and not as big as in the East?

Mr. Keefe: That is correct.

Mr. Sheean: In 1911, the Southern district passed the Western district in train loading?

Mr. Keefe: Yes. It went from 324.2 to 337.4, while in the West it declined from 325.9 to 321.7.

Mr. Sheean: And, in 1912, what was the situation in the three districts?

Mr. Keefe: In the Western district, it increased per train over 1912 from 321.7 to 344.7, compared with 1910 of 325.9, while in the Eastern district it went from 459.8 tons per train to 484.2 in 1912; in the Southern district it went from 324.2 to 356.4.

Mr. Sheean: Now, in 1913, I note that this shows that the returns cover railways having annual operating revenues above $100,000. Why is that note there as to 1913 and not as to the others?

Mr. Keefe: Because the Interstate Commerce Commission, in their publications, have shown in the year 1913 returns for railways having annual operations of $100,000 or over, while in the previous years there were no such exemptions.

Mr. Sheean: And the Commission states that these railways operate 96 per cent of the steam railway mileage?

Mr. Keefe: I don't recall just the percentage, but it is practically all of the railroad mileage.

Mr. Sheean: And then as between 1910 and 1913, in 1910, the West was higher in train loading than the South, but lower than the East?

Mr. Keefe: Yes, in 1910, the average train load in the South was 324.2, as compared with 325.9 in the West. In other words, the West had an average of 1.7 tons more per train than they did in the Southern district.

Mr. Sheean: From 1910 to 1913, the Western district has not only fallen behind the Southern district, but is now the lowest in train loading of any one of the three districts?

Mr. Keefe: Yes, sir.

Mr. Sheean: It is not only absolutely so, but in a percentage relationship as well. Its percentage increase since 1910, starting with a lower base than in the East, and approximately the same basis as in the South, shows that it has had a lower per-

centage increase than in the South, but a little higher percentage increase than the train loading in the Eastern district?

Mr. Keefe: Yes, sir.

Mr. Sheean: Those percentages are then shown in the other column, or the two columns to the right, as to what the percentage loading in the Eastern district at the present time, or 1913 is, as compared with the West?

Mr. Keefe: Yes, sir, in 1913, placing the West as 100 per cent, the East have 140.3 per cent of the tonnage, or, in other words, 40 per cent more.

Mr. Sheean: So if the train load fairly represents the productive efficiency of the engineers and firemen, the Eastern engineers and firemen are 140 per cent in productive efficiency of the Western engineers and firemen, at the present time?

Mr. Keefe: That was the only measure of comparison, yes.

Mr. Sheean: If the train load is the basis of computation, the East, on the theory of train load, the average freight train load, is in the relation of 140 per cent to the train load in the West?

Mr. Keefe: Yes.

Mr. Sheean: And the South, 102 per cent?

Mr. Keefe: Yes.

Mr. Sheean: Exhibit No. 20—

Mr. Byram: May I ask a question there?

Mr. Sheean: Surely.

Mr. Byram: This exhibit, as I understand it, Mr. Keefe, shows that in the Eastern district the train load in 1913 was 140 per cent of the train load in the Western district?

Mr. Keefe: Yes.

Mr. Byram: That is, it was 40 per cent greater?

Mr. Keefe: Yes.

Mr. Byram: Do you know whether the engineers and firemen on the Eastern lines get a higher rate of pay or a lower rate than the Western engineers?

Mr. Keefe: Basing my statement upon such analysis of their schedules as I have seen in Exhibit No. 1, I reached the conclusion that the Eastern engineers and firemen are not receiving as high a compensation as the engineers and firemen in the West are now receiving. What I mean, in speaking of engineers and firemen in the East, is their present wages, after

their last arbitration, as compared with the wages that the engineers and firemen receive at the present time, in the West.

Mr. Byram: That is, the same size of engine, the same class of engine in the East would pay the engineer and fireman a lower rate per mile or per 100 miles than the same engine on the Western lines?

Mr. Keefe: Yes. My opinion is based upon such analysis of not only the rates of pay, but also their rules.

Mr. Byram: Altogether, you think their compensation would be lower than in the West?

Mr. Keefe: Yes, that is the opinion I have reached in analyzing the comparison of the schedules in the East, as compared with the West.

Mr. Byram: Although the average train load that those engines pull is forty per cent greater than that of the Western lines?

Mr. Keefe: Yes, or putting it another way; the average train load of the Western district is only about 70 per cent of what it is in the East. That is expressing it in another way.

Mr. Byram: Yes. That is all.

Mr. Burgess: Mr. Keefe, would that be due to the fact that they did not earn it, or due to the award that was granted?

Mr. Keefe: I never attempted to make any analysis as to what it was due to, or as to what were the causes leading up to it, but just simply what they actually receive. I did not undertake to say as to what caused the condition.

Mr. Burgess: The fact that they did not get it would not imply that they did not deserve it, would it?

Mr. Keefe: I prefer not to answer that question.

Mr. Burgess: All right.

The Chairman: Upon what do they base their rate of wages in the East, do you know?

Mr. Keefe: In the East?

The Chairman: Yes, upon the weight on drivers?

Mr. Keefe: No. I understand that in the East, the award gives them a minimum rate for passenger engines, and also a minimum rate for freight engines. That is, they have established a minimum rate in each of the classes of service. That is my recollection of it.

Mr. Sheean: What is paid is all based upon the award

given in the concerted movement of the Eastern railroads and the Brotherhood of Locomotive Engineers and the Brotherhood of Locomotive Firemen and Enginemen.

Mr. Keefe: Yes.

Mr. Sheean: As to the Brotherhood of Locomotive Engineers as to the engineers, and the rates paid to firemen are based upon the award given by another Board of Arbitration, in the case of the Eastern railroads and their firemen?

Mr. Keefe: Yes.

Mr. Burgess: And you would rather not express an opinion, Mr. Keefe, as to whether that award was fair or unfair?

Mr. Keefe: I have not made any study of that question at all, Mr. Burgess. It is a very big question that you are asking there, and I would not want to answer it offhand.

Mr. Burgess: All right.

Mr. Nagel: Mr. Keefe, this table shows that the tonnage in the West is relatively lighter.

Mr. Keefe: Yes, sir, per train.

Mr. Nagel: Per train?

Mr. Keefe: Yes, sir.

Mr. Nagel: Is this exhibit introduced to show that the efficiency is correspondingly less in this district?

Mr. Keefe: The question of efficiency was not in mind at all in introducing it.

Mr. Nagel: That is, the productive efficiency?

Mr. Keefe: The productive efficiency. It is simply to show what was being handled by the trains in the East, West, and South.

Mr. Nagel: Although the tonnage is lighter, may it not be true that the work is correspondingly heavy in that district, or heavier?

Mr. Keefe: I couldn't say, Mr. Nagel. I have no actual experience as to a comparison of their work.

Mr. Nagel: I was wondering, of course I have no impressions on the subject, but I was wondering whether it may not be possible that the larger territory and the conditions in the Western territory make the work more arduous than it would be, for instance, in the Eastern territory, and that there is something to compensate for this smaller productive efficiency?

Mr. Keefe: About the only thing that I have read as to a

comparison of the engineers' duties in the West and in the East, is Mr. Stone's own arguments in the Eastern case, where he took the position that the men in the East were entitled to as much as, if not more than they were in the West. I remember reading that with considerable interest, when that argument was made.

Mr. Nagel: Well, that might convince you and not satisfy us.

Mr. Keefe: Yes, but as to a comparison of their duties, Mr. Nagel, I have not made any comparison at all.

Mr. Sheean: Exhibit No. 20 makes a comparison of the average tractive power per locomotive in these territories.

Mr. Keefe: Yes, sir; it makes a comparison, from all the data available, as to the relative tractive power of the locomotives in the different territorial groups.

Mr. Sheean: In that connection, Mr. Keefe, it might be well to explain the manner in which this tractive power is reported to the Interstate Commerce Commission. Is that part of the requirements of the Interstate Commerce Commission's statistical reporting?

Mr. Keefe: The annual report made by the railroads to the Interstate Commerce Commission has pages devoted to the reporting of the tractive power per locomotive. Sheets Nos. 105 and 107 of the 1911 report, show a description of the locomotives and also give the information to the tractive power, and this information was obtained from those reports on file with the Interstate Commerce Commission.

Mr. Sheean: The Interstate Commerce Commission itself prescribes the method of reporting tractive power?

Mr. Keefe: Yes.

Mr. Sheean: And instead of weights on drivers it is reported in the average tractive power per locomotives, pounds?

Mr. Keefe: Yes.

Mr. Sheean: That appears at what page of the form of the reports which the Interstate Commerce Commission requires?

Mr. Keefe: Pages 105 and 107 of the 1911 report.

Mr. Sheean: The suggestion is made, Mr. Keefe, that page 102 of this Interstate Commerce Commission book sets out

the formula of arriving at the tractive power, under the rules of the Commission.

Mr. Keefe: Yes, I should have said 102 to 107, inclusive.

Mr. Sheean: And the uniform method of arriving at tractive power is prescribed as a part of the accounting system, or rules of the Interstate Commerce Commission?

Mr. Keefe: Yes.

Mr. Sheean: At page 102 of the forms of reports which they provide for the several carriers?

Mr. Keefe: Yes.

Mr. Sheean: What is the situation as shown on Exhibit 20, with reference to the districts which have the big engines?

Mr. Keefe: The data for the year 1910 for each of the groups was not available by these districts, and the first year that it was available by these districts, was the year 1911, and it shows that in 1911 in the Eastern District, the average tractive power per locomotive was 28,884 pounds, while in the year 1913 it was 30,658 pounds, or an increase of 6.1 per cent, while in the Western District it was 27,069 pounds per locomotive in 1911, and 28,795 pounds in 1913, an increase of 6.4 per cent. In the Southern District it was 27,320 pounds per locomotive in 1911, and in 1913 it was 29,168 pounds, or an increase of 6.8 per cent.

Mr. Sheean: That is, the Western district, at the present time, has not gotten up to the weights on drivers which, in the Eastern district, they averaged in 1911.

Mr. Keefe: As to average tractive power, per locomotive.

Mr. Sheean: At the present time, it is lower than the tractive power in the Southern district, as well as lower than the tractive power in the Eastern district?

Mr. Keefe: Yes.

Mr. Sheean: The general tendency, throughout the country, for the increased tractive power on locomotives, is shown throughout the United States, and in the several districts.

Mr. Keefe: Yes, sir.

Mr. Sheean: But the Western district is still the lowest of the three?

Mr. Keefe: Yes.

Mr. Sheean: That, on the question of density, was all.

RE-CROSS EXAMINATION.

Mr. Stone: In this Exhibit 16, Mr. Keefe, where you show in table No. 3 in the Western territory, a decrease in population, per mile of line.

Mr. Keefe: Yes.

Mr. Stone: Are we to understand from that, that the population is dying off, or that the railroads are building faster than the population is increasing?

Mr. Keefe: There is a slight decrease in the aggregate population. Do you mean—comparing what year, I should have asked?

Mr. Stone: I was taking all the years. You show a gradual decrease from 1900 down to 1912.

Mr. Keefe: Comparing 1900 with 1912, of course, there is an increase in the population, and the other sheet shows that there is also an increase in the amount of tracks operated, which would indicate that they are building their rail properties.

Mr. Stone: Is it not a fact that such roads as the Western Pacific and Chicago, Milwaukee & St. Paul, Puget Sounds Lines, have added greatly to the mileage, and that they were built for through traffic, and perhaps through a country where there is scarcely any population? The local population has not increased along these lines, and that the Milwaukee evidently found it necessary to build through to the Coast, for through traffic, adds greatly and would have a tendency to reduce the population, per mile of line in the Western territory, would it not?

Mr. Keefe: I do not know the purpose for which the Milwaukee was built, but of course if it didn't add anything to the local population, it would reduce the population per mile of line.

Mr. Stone: But, regardless of whether the population has increased or decreased, you still have to have engineers and firemen and run railroads, do you not?

Mr. Keefe: Yes, sir.

Mr. Sheean: You do not mean to convey the impression that the engines and firemen are to blame, because the population is decreasing, do you.

Mr. Keefe: I have not ever said anything about that part of it.

Mr. Stone: In the Eastern territory, where the traffic is more dense, as you show by your tables, is it not a fact that there is also a greater capital outlay to handle this traffic?

Mr. Keefe: I would say so, yes, sir.

Mr. Stone: Take, for example, the Eastern territory, where there are large centers of population, and where it requires large terminal outlays, they are bound to be much heavier than they would be in the Western territory, where those large terminals and heavy expenses incurred with them, are not required?

Mr. Keefe: There are some large terminals in the West, also, Mr. Stone.

Mr. Stone: Yes, but there are also quite a number in the East. Take, for example, the two terminals in New York City, where the president of the Pennsylvania testified they had spent $130,000,000 on their terminal; or the New York Central Lines, where they have spent one hundred and forty or fifty millions, and are not through yet. We do not have such outlays as that in the West, for these Western roads. But you take it through a densely populated country, it means a higher capital outlay, both for construction of railroad and for maintenance, does it not, than it does through these tracts of barren country, where there is scarcely any population?

Mr. Keefe: I do not recall that the population has very much to do with the maintenance of the property. The question of capital outlay, for traffic in the more populous territories, is correct.

Mr. Stone: In this Exhibit 18 that you show, just what standard was fixed to draw the line of demarcation between branch and main line service?

Mr. Keefe: Each railroad reported its own classification, what they considered was branch line and main line.

Mr. Stone: There were no instructions issued by your Bureau that was compiling the data?

Mr. Keefe: No, sir, none whatever as to the basis of separation.

Mr. Stone: So you do not know whether this same plan was followed by all alike, or not?

Mr. Keefe: No, only they were required to report such data

as they had already compiled, showing the separation between branch and main line.

Mr. Stone: Do you, in any of these exhibits that you are putting on, show the rates in these different districts, in the freight and passenger service—make any comparison between the rates in the different districts?

Mr. Keefe: What class of rates?

Mr. Stone: Well, do you make any comparison between the freight rates in the Western territory and the freight rates in the Eastern territory, or Southeastern territory?

Mr. Keefe: No, sir.

Mr. Stone: Nor do you make any comparison between the passenger rates in the Western territory and the passenger rates in either of the other territories?

Mr. Keefe: No, sir.

Mr. Stone: Do you show in any of these exhibits, the average number of miles the roads in the Western territory carry each passenger, and the average carried in the East?

Mr. Keefe: No, sir.

Mr. Stone: It is true, is it not, that there is a much longer passenger haul, that is, a larger number of miles, per passenger, in the Western territory than there is in the East?

Mr. Keefe: There is a greater length of haul for passengers in the West than there is in the East. I do not recall the figures just now.

Mr. Sheean: Per mile of line?

Mr. Keefe: No, he said just for the length of haul.

Mr. Stone: Not talking about density of traffic now. I am talking about the number of miles they haul the passenger. I presume you remember very distinctly my statement in the Eastern territory, where I took the position that the engineer in the East was entitled to as much pay, or more, than the man in the West, and, of course, if you read my statement, you must have read the statement of the railroads that followed. Do you remember the position they took in the East, regarding my request?

Mr. Keefe: I cannot say I remember it as vividly as I remember yours.

Mr. Stone: Of course not. They took the position, did they not, that it was unfair for them to be required to pay the

same rates as the West, because their rates were so much higher.

Mr. Sheean: And because the West was already paying too much?

Mr. Stone: No, they did not say that.

Mr. Sheean: I will be glad to submit their brief on that, Mr. Stone, if there is any dispute about it, that the West had not been shown to have any comparable basis, or that the rates in the West were in themselves fair or reasonable.

Mr. Stone: Are you through now?

Mr. Sheean: Yes; but I will be glad to submit the briefs of both sides in that, if you think it will enlighten the Board.

Mr. Stone: I do not think there is any question about what I stated, but I am surprised to see the railroads argue on both sides of the question. I still say the men in the East should be paid the same as the men in the West, or better. I have not changed my views in the least on that. I know you stated that what was paid in the East, was granted by the award to the Locomotive Engineers.

Mr. Keefe: I made that general statement.

Mr. Stone: Is it not a fact that the award in the East simply established a minimum rate and said nothing about any other classification?

Mr. Keefe: That is my recollection of it.

Mr. Stone: Then the rates paid in the East are not the rates paid by the award; they are the rates in the individual schedules, with a minimum basis established?

Mr. Keefe: That probably is a more correct way of saying it, Mr. Stone.

Mr. Stone: You spoke of this branch line service, in your Exhibit 18. Is it not a fact that in much of the branch line service it is a higher rate because it takes a higher rate than through freight service?

Mr. Keefe: Will you read that question?

(The question was read as above recorded.)

Mr. Stone: I do not mean the rate paid to engine crews, but I mean the freight and passenger rate.

Mr. Keefe: I do not recall at this moment a distinction in the earnings that the railroads received whether it was a branch line or main line. In our territory, which I am familiar with,

there is no distinction whether the line it is transported over is a branch line or the main line.

Mr. Stone: But is it not a fact that much of your main line traffic is through stuff going to the coast, while much of your branch line traffic is local intrastate traffic and takes a local rate, which is a very high rate?

Mr. Keefe: I could not answer that generally for all the lines.

Mr. Stone: You do know there are some very high local rates, do you not?

Mr. Keefe: It depends upon what you mention as high.

Mr. Stone: Well, 10 cents a mile for passengers, would be quite a high local rate?

Mr. Keefe: I do not know of a rate of 10 cents per mile.

Mr. Stone: You know lots of rates in the West of 5 cents, do you not?

Mr. Keefe: No, I do not.

Mr. Stone: Is it not a fact that with the lighter tonnage in the Western territory per average train load that the earnings to the company or the productive efficiency of the engineer and fireman would be higher than in the East, with the train loads shown there?

Mr. Keefe: I have never made any computation of the productive efficiency of engineers in the East or in the West.

Mr. Stone: I think that is all.

Mr. Byram: Mr. Keefe, Mr. Stone asked you about the alleged high rates on branch lines, and I wanted to ask you if your Exhibit 18 does not show that only 7 per cent of the tonnage is carried on branch lines?

Mr. Keefe: Exhibit 18 shows that 7.07 per cent of the total tons of freight carried one mile was handled on the branch lines.

Mr. Byram: So that if there were higher rates, it would only apply to 7 per cent?

Mr. Keefe: If there were any higher rates for branch lines which I am not acquainted with, Mr. Byram, it would apply only to that percentage of traffic.

Mr. Stone: I should like to ask another question or two. Is it not a fact, that in the Eastern Arbitration of the Engineers that no distinction was made between main line and branch line

service, so far as the application of the Award is concerned?

Mr. Keefe: I do not recall any distinction between main lines and branch lines.

Mr. Stone: Is it not a fact, also, that in the Award of the Arbitration of the Firemen in the Eastern territory no distinction was made between branch and main line service?

Mr. Keefe: I do not recall any distinction of that character in the Award.

Mr. Stone: Is it not a fact that on some of the highest rates paid today in the Western territory, they are paid on so called branch line service?

Mr. Keefe: Do you mean rates of pay, now?

Mr. Stone: Rates of pay, now. I am not talking about freight rates or passenger rates. Some of the highest rates paid to engineers and firemen in the Western territory are paid on so-called branch line service; is not that a fact?

Mr. Keefe: I would not want to say that they are the highest. I know there are some very high rates paid to men on branch lines, or, at least, the men on branch lines are making very high earnings. I will put it that way.

Mr. Stone: But you are not sure about their getting a higher rate?

Mr. Keefe: I do not know whether it is the higher rate or the more mileage they make, or what it is. I did not analyze that part of it.

Mr. Stone: That is all.

RE-DIRECT EXAMINATION.

Mr. Sheean: You do not know of any schedule that makes specific provision for paying higher rates on a branch because it is a branch, do you?

Mr. Keefe: I am not acquainted with any schedule of that description.

Mr. Sheean: But, whatever the rates are, you do know that the number of runs that are branch runs produce, at the end of the month or the end of the year, considerable sums of money on several of the roads?

Mr. Keefe: Yes.

Mr. Sheean: That is all I want to ask on that. Exhibit 21, please.

(The document so offered and indentified was received in evidence and thereupon marked "Railroads' Exhibit No. 21, January 28, 1915.")

Mr. Sheean: Mr. Keefe, the information shown on Exhibit 21 has been assembled since the Arbitration proceedings began, has it not?

Mr. Keefe: Yes, sir.

Mr. Sheean: That information was obtained following some question asked early in the proceedings, about a comparison of payments to employes engaged in marine service.

Mr. Keefe: Yes, sir.

Mr. Sheean: That consists of two sheets?

Mr. Keefe: Yes, sir.

Mr. Sheean: And is the result of a letter of inquiry sent to the different companies which are shown on sheets 1 and 2, and contains the information given by those companies, as to the amounts paid to the different officers and employes in marine service?

Mr. Keefe: Yes, sir. Telegraphic requests made upon each of the companies, and this tabulation shows all of the replies we received from every one we made inquiries of.

Mr. Sheean: Now, just running through those generally, in the Southern Pacific Company, what is paid the chief engineer in passenger ferry steamers operated in the vicinity of San Francisco?

Mr. Keefe: One hundred and eighty-five dollars per month for chief engineer; second engineer $155; firemen $80 per month.

Mr. Sheean: And, according to the remarks, second engineers do the oiling—well, the remarks speak for themselves?

Mr. Keefe: Yes.

Mr. Sheean: Now, in the freight car ferry steamers, what are the salaries of the engineers and firemen?

Mr. Keefe: The chief engineer receives $189.50; the second engineer $157; the assistant engineer $124.50; firemen $81.

Mr. Sheean: In passenger and freight river steamers, operated between San Francisco and Sacramento, what do the engineers and firemen receive?

Mr. Keefe: The chief engineer receives $130; the second engineer $105; firemen $55.

Mr. Sheean: The various railroads which have any service

of this sort, show for those railroads what the payments are to the master, engineer, and the various officers as well as the firemen where the firemen have a monthly wage?

Mr. Keefe: Yes. I would like to read that one on the Gulf, Colorado & Santa Fe. That is one I am acquainted with.

Mr. Sheean: You are familiar with that?

Mr. Keefe: Yes; the engineer receives $137.50 per month; the mate $100 per month; firemen $50; master $165.

Mr. Sheean: That is a maximum day of 13 hours?

Mr. Keefe: Yes. We generally require our crew to work up to the maximum without any overtime.

Mr. Sheean: Some of the information here given covers trans-Atlantic service, does it, as well as trans-Pacific?

Mr. Keefe: Yes, and the Coastwise, both the Atlantic and Pacific Coastwise.

Mr. Sheean: Now, in a general way, what is shown in the Coastwise service, Atlantic and Pacific?

Mr. Keefe: On the Atlantic Coastwise service, in the Mallory Steamship Company service, shown at the bottom of the first column, the chief engineers receive $150 to $175 per month, according to size of ship; the first assistant receives $100 to $115; second assistant $90 to $105, third assistant $80 to $85; firemen $40 per month.

While, on the Southern Pacific, Atlantic Steamship lines, taking the class where they have the greatest number of ships, the chief engineer receives $165; the first assistant engineer $110; the third assistant engineer $100—

Mr. Sheean: That is the second assistant engineer, $100, is it not?

Mr. Keefe: Yes, the second assistant engineer $100; and the third assistant engineer $80.

Mr. Sheean: And the firemen?

Mr. Keefe: Firemen $40.

Mr. Sheean: Now, on the Pacific Coastwise lines, what are the salaries?

Mr. Keefe: The Pacific Coastwise service are the salaries that I read first in your direct examination.

Mr. Sheean: Those were largely in the harbor, were they not, Southern Pacific Company harbor service?

Mr. Keefe: Yes.

Mr. Sheean: Now, Pacific Mail Steamship Company.

Mr. Keefe: The chief engineer receives $160 to $200 per month; first assistant engineer $115 to $135; second assistant engineer $90 to $110; third assistant engineer $80 to $90; firemen $45; oilers $50.

The Swayne and Hoyt state that "These are the union wages paid, practically without exception, on steamers running on the Pacific Coast of the United States. Chief engineer, $150 per month; First assistant, $100; second assistant, $85; third assistant, $80; firemen, $55.

On the second sheet is shown the rates of compensation for steamship employes as reported by the Canadian Pacific Railway. It shows the Trans-Atlantic, Upper Lakes service, British Columbia Lake and River service, British Columbia Coast service; and the Trans-Pacific service, and gives the rates for the various classes of employes.

The Goodrich Transit Company, shown on the bottom of that page, represents, generally speaking, wages that are paid on the Great Lakes in the vicinity of Chicago. It shows that the engineer is paid $150 per month; firemen $50 per month, oilers $50 per month.

Mr. Sheean: This is simply the information as furnished by these lines severally, following a query early in the hearing as to whether any comparison had been made as to the payments to the engineers or those in marine service?

Mr. Keefe: I think the query was made some time in December, the middle of December, as I recall it: It simply shows for what it is worth, what the Committee received from the inquiries that were sent out.

Mr. Nagel: Frequently these employes receive board, in addition to the figures shown here, do they not?

Mr. Keefe: Yes, in some cases it is shown and in some of them they do not. In the San Francisco Harbor service, I understand they do not receive board in addition, but the figures shown for the first two are independent of the board allowance; that is the gross amount, independent of a board allowance.

Mr. Nagel: You did not get the figures of the United States lighthouse service?

Mr. Keefe: No, I made no inquiries as to the Government service.

Mr. Nagel: That might interest some of the advocates of Government ownership: I don't remember it exactly, but I think a member of a crew there gets $30 a month.

Mr. Burgess: Mr. Keefe, do these employes, if they might be called that, receive any pay whether they work or not? If their boat was tied up a day, would they get their money?

Mr. Keefe: I understand that some of them do and the others do not. I believe there are certain of the officers that are carried all the year around, but I know there are certain of the crew that do not. I know in our part of the country they do not.

Mr. Burgess: You don't know of any railroad that allows the engineer $1.50 a day for board while away from home terminal, do you?

Mr. Keefe: Not yet, no, sir.

Mr. Park: Did you develop the qualifications necessary? Must an engineer be a machinist, competent to do mechanical work?

Mr. Keefe: I made no inquiries of that kind, Mr. Park.

Mr. Shea: Are you sure that these men are satisfied with their wages?

Mr. Keefe: I have no information on that, Mr. Shea.

Mr. Nagel: Do you know of anybody who is?

Mr. Keefe: I was just going to remark that I doubt whether there are more than a very few people who are satisfied.

Mr. Shea: Are you?

Mr. Keefe: I am not.

Mr. Shea: You had better join the union.

Mr. Stone: Are you through, Mr. Sheean?

Mr. Sheean: Yes.

RE-CROSS EXAMINATION.

Mr. Stone: Mr. Keefe, referring to this Exhibit 21, each one of these men, the captain and the chief engineer, are furnished with a cabin, and about the best board there is on the ship, are they not?

Mr. Keefe: I believe that is generally so from my experience, which has been very limited.

Mr. Stone: From what little experience I have had when I have been at sea, I have noticed that the captain sat at the

head of the table, and I also noticed that he chose whoever he happened to care to have sit at his table, and it was generally remarked that the most beautiful woman passenger had the seat of honor on the right. Do you know of any of the beautiful women passengers on these Overland Limited passenger trains that are riding in the cab with the engineer?

Mr. Keefe: I am not acquainted with any of them.

Mr. Stone: He has no age limit, has he?

Mr. Keefe: I don't know, Mr. Stone.

Mr. Stone: He has no surprise tests, has he? They don't turn any switches on him or anything of that kind, do they?

Mr. Keefe: I don't know.

Mr. Stone: The fact remains that he takes orders from nobody on earth; once he leaves the wharf the captain is king in his own right, is he not?

Mr. Keefe: That has been my understanding, yes.

Mr. Stone: And the engineer takes orders from everybody, both written and verbal. After they run out of the written rules, then they get up on the engine and give him verbal instructions to leave headlights uncovered and to do this, that and the other. So it is a comparison, where you are comparing an engineer, with something that is not comparable at all.

I note that in this Southern Pacific Company—Pacific System, that a great many of these are allowed the per diem allowance per day when not on board, and their board is furnished free while on the ship.

Mr. Keefe: That is for the two last ones; the one designated "passenger and freight river steamers operated between San Francisco and Sacramento," and also the steamer Breakwater. But their rate of compensation, I notice, is very much less than it is on the ferry steamers in the harbor.

Mr. Stone: The fact also remains that in all this Trans-Atlantic service, there are perhaps four or five officers who are capable of navigation, are there not, at least two or three are required, three I believe are required under the law at the present time. That is to say, there must be three officers capable of navigating the ship?

Mr. Keefe: I don't know.

Mr. Stone: While the engineer on one of these heavy

trains has no assistance at all, and perhaps an inexperienced fireman?

Mr. Nagel: Mr. Stone, that illustrates your difficulty; the captain cannot continually stay on duty for 36 hours; he has no place to step off, and he goes to bed and another officer takes his place, so of course there must be three or four.

Mr. Stone: Mr. Chairman, and gentlemen of the Board, if the captain has been trained in railroad service he could stay on duty forty-eight hours; it has been done time and again.

Mr. Nagel: I understand that is a happy response, but it does not compare the two occupations on a fair basis.

Mr. Stone: I agree with you.

Mr. Nagel: Necessarily there must be several officers on board of a ship that has a run of several days and nights, in order that they may relieve each other. I think that that is obvious.

Mr. Stone: It is also true, that unless in emergency cases, every one of them have regular hours, regular meals and regular sleep.

Mr. Nagel: And you will find the captains of large ships or small ships stay on the bridge for 36 hours without going below, because generally the most responsible man stays there during emergencies which arise in their occupation.

Mr. Stone: I also see in this second sheet that the captain or commander of the Canadian Pacific gets a maximum rate of £55, $275 a month, with a bonus of £200 per annum, $1,000 bonus, besides. It is also true that many of these lower officers that you show here are paid a tip by every passenger, of from $2.50 up to $20 for the trip.

Mr. Keefe: As I understand that bonus, from the information I have, it is given under certain qualifications; that is, if they make a certain efficiency in navigation, or reach a certain proficiency in navigation. That is the answer I had to the inquiry I made as to what that bonus covered. As to the question of tips, I do not know anything about it.

Mr. Stone: Mr. Chairman, I fully agree with the statement of Mr. Nagel, that there is no comparison between the two occupations.

Mr. Sheean: You did not find out, did you, Mr. Keefe,

in any of these inquiries, whether any of these engineers had to fill their grease cups during service?

Mr. Keefe: No.

Mr. Stone: I will guarantee you that the chief engineer does not. He does not even get his hands dirty.

Mr. Sheean: Exhibit 22.

(The document, so offered and identified, was received in evidence and thereupon marked "Railroads' Exhibit No. 22, January 28, 1915".)

Mr. Sheean: Mr. Keefe, Exhibit 22 was compiled in like manner as the one just preceding, because of an inquiry which was made early in the proceeding as to some comparison as to the payments received in transportation service of other employes in transportation service?

Mr. Nagel: I suppose, to relieve the situation, I ought to assume the responsibility for that question.

Mr. Sheean: And as to the roads shown on this page on Exhibit 22, the rates of pay allowed telegraphers are taken from the schedules of these railroads?

Mr. Keefe: Yes.

Mr. Sheean: Now, was there any particular purpose or object in the selection of these particular railroads, or was it thought that the railroads were large railroads and fairly representative of the territory?

Mr. Keefe: That was the underlying motive which governed the selection of these roads, rather than to show every one of the 98 different railroads. It was thought that a certain number of railroads, to be considered as fairly representative of the territory, would be sufficient.

Mr. Sheean: And simply to give a general view of the wages paid on these roads to telegraphers and the number of employes drawing the different salaries, as shown on this exhibit?

Mr. Keefe: Yes, for every one of these railroads, every one of the positions shown in the schedule was included.

Mr. Sheean: The schedule of each railroad enumerates the position, and what that particular position will pay?

Mr. Keefe: Yes.

Mr. Sheean: The telegraphers' schedule is prepared, not on a mileage or time basis?

Mr. Keefe: Generally on a monthly basis.

Mr. Sheean: Well, now, tell us in a general way what is shown by this exhibit, Mr. Keefe.

Mr. Keefe: It shows, graded as to the amount of pay per month, the number of positions shown in each of these schedules, that are shown in the schedules.

Mr. Sheean: And does this cover, or attempt to cover, Mr. Keefe, all those in the service as telegraphers on the road, as shown by the schedule, of all other telegraphers?

Mr. Keefe: No, only shows just what the schedule itself shows. Some of the railroads do not indicate in their schedule how many positions are shown, as to different rates, and a notation to that effect is shown opposite each one. For instance, at one point they will show an operator is drawing $75. They do not indicate how many operators are there at that point that take that rate.

Mr. Sheean: In carrying out your total, then, did you simply count them as having one operator at each point named?

Mr. Keefe: Yes.

Mr. Sheean: Then, in the case where this is starred, under some of the salaries for these positions are shown at certain offices, merely operators, or other operators; as the number of operators are not shown, they have, in each instance, been counted as only one in the position, in the columns?

Mr. Keefe: Yes.

Mr. Sheean: And, therefore, from the schedule, that at least 10,635 employes are covered by the schedules and positions here shown?

Mr. Keefe: Yes.

Mr. Sheean: As to those which are starred, it may be that two, three, or more persons draw the particular salary specified in the starred columns?

Mr. Keefe: Yes.

Mr. Sheean: Of the 10,635 telegraphers in the employ of these companies, how many are drawing under $60 a month?

Mr. Keefe: One thousand, three hundred and sixty-four.

Mr. Sheean: How many between $60 and $65 a month?

Mr. Keefe: Two thousand, two hundred and fifty-seven.

Mr. Sheean: How many between $65 and $70?

Mr. Keefe: Two thousand and forty-three.

Mr. Sheean: Seventy to seventy-five dollars?

Mr. Keefe: One thousand, three hundred and three.

Mr. Sheean: Seventy-five to eighty dollars?

Mr. Keefe: One thousand, four hundred and forty.

Mr. Sheean: And $80 to $85?

Mr. Keefe: 757.

Mr. Sheean: And so, under each of the columns, the number of men drawing the salaries and the railroads on which those men draw those salaries, are shown across this page?

Mr. Keefe: Yes.

The Chairman: What particular fact does this exhibit tend to establish?

Mr. Sheean: I think, as Mr. Nagel said—that he suggested early in the meeting that—I don't know that he asked for it, but some question was asked as to whether some witness could tell, in a general way, what the wages drawn by others in transportation service was. Simply to get a general picture of the whole situation.

Mr. Nagel: I did not ask the question, solely for the purpose of comparison. I feel that in this whole inquiry, the general public has an interest, apart from the immediate parties, and that in considering what should be properly paid to engineers and firemen, we must necessarily have a regard for what ought to be paid to other employes, who are essential to the maintenance of the system, and I wanted a picture of some of the other employes who are in, as I understand it, fairly responsible positions. I think it is a surprising showing that in one road the great majority of telegraphers receive less than $60, and the very large majority, I think almost nine-tenths of the men, receive less than $80. That is a very enlightening showing to my mind.

Mr. Sheean: And it was simply to get a number of roads that would give a picture of the whole situation of transportation service.

Mr. Nagel: This is a public carrier, with a good many obligations and in a great many directions.

Mr. Sheean: Now, I may say in that connection, that if any other company or companies it is thought would change in any way—we are not presenting it for any other purpose than to give a general view of the situation, thinking that something

of this sort was in the mind of Mr. Nagel in asking the question, but if there be other roads whose schedules in this respect would throw the picture into a different perspective, we would be glad to make the inquiries of other roads. We thought that these roads here enumerated would be fairly representative as to the general character of the situation. That, I think, was all I cared to ask about this Exhibit 22.

Mr. Stone: Nothing.

Mr. Burgess: Well, Mr. Sheean, would this exhibit appear to indicate that the telegraphers are getting too little, in your judgment?

Mr. Sheean: It is not offered, Mr. Burgess—I am in no authority whatever to venture an opinion upon the proposition. The only purpose and object of its presentation is that the Board might have a picture of the whole field, and in order that they may know, if they think it proper to consider in connection with the demands of the engineers and firemen, what the situation of other employes in this public service is at this time.

Mr. Burgess: But from your well known knowledge of railroad matters, and I presume as a public spirited citizen, would you not assume that these wages were too low?

Mr. Sheean: By comparison with the engineers and firemen, unquestionably too low, yes.

Mr. Burgess: Not necessarily comparing with any person's wages, but from the standpoint that they are responsible employes?

Mr. Sheean: My own judgment is that the measure of wages and remuneration is always relative; that there is no absolute rule. As suggested here, no person thinks he is being paid enough for what he is actually doing. Relatively, this would indicate that by comparison with the engineers and firemen, the telegraph operators are receiving a much lower wage. Whether one be too high or the other too low, I did not intend to argue.

Mr. Nagel: To relieve Mr. Sheean of the responsibility of that matter, I want to repeat that I did not ask for this information, but it is here, and I am prepared to say that I think a great proportion of this compensation is extremely low, for men who have charge of telegraph offices and have as much

responsibility with respect to trains, including engineers, firemen and hostlers, as I understand they do have.

Mr. Burgess: As I understand, you are answering for Mr. Sheean, Mr. Nagel?

Mr. Nagel: No, answering for myself.

Mr. Burgess: Well, you said to relieve Mr. Sheean of the responsibility.

Mr. Sheean: Mr. Nagel, I think, is very kindly taking the responsibility for this exhibit, as to its purpose or object. It was prepared in good faith, in an effort to try and give such light as Mr. Nagel seemed to think was desirable in consideration of the question. As to what deduction should be made from it, I had no particular purpose or object.

Mr. Stone: I would like to ask you one question. Are all the operators shown here on the nine-hour day?

Mr. Keefe: All the operators that are shown in the schedules, regardless of the tricks, or the length of hours on duty, are shown here.

Mr. Stone: Do you show your despatchers here, as operators?

Mr. Keefe: No, those salaries that are shown above $100, generally speaking, are the managers and wire chiefs at despatchers' offices. They are not the train despatchers themselves. Just simply the managers and wire chiefs.

Mr. Stone: He is simply a manager; he does not work a trick himself; he has charge.

Mr. Keefe: I do not know on these lines, but on our line the manager does telegraphing himself. He has not a regular trick, but he does do a good deal of telegraphing in addition to managing the office.

Mr. Stone: But are none shown on here who work over nine hours; that is the day fixed?

Mr. Keefe: I understand a Federal law has been passed regulating the hours of operators.

Mr. Stone: An operator works nine hours and the engineer can work sixteen.

Mr. Byram: Does it necessarily follow that the operator only works nine hours? Are they not allowed to work longer hours?

Mr. Keefe: There are exceptions under the law that pro-

vide for thirteen hours, as I recall it. I have not looked at it for a year or so.

Mr. Byram: Does not the law make provision for a twelve hour service at one shift stations?

Mr. Keefe: I think it is thirteen hours; I am not certain whether it is twelve or thirteen hours, but my recollection is it is thirteen.

Mr. Byram: Unless the offices operated continuously the service would not necessarily be confined to nine hours, would it?

Mr. Keefe: No.

Mr. Stone: Do these operators receive compensation in any other way, Mr. Keefe?

Mr. Keefe: It is not indicated in the schedule. If the operator was agent at some point, he probably would receive some commission, if he was agent also; but for the straight operators, I do not understand they receive any other compensation than what is shown in the schedule.

Mr. Stone: That is all.

Mr. Sheean: Exhibit No. 23.

(The document so offered and identified was received in evidence and thereupon marked "Railroads Exhibit No. 23, January 28, 1915.")

Mr. Sheean: Mr. Keefe, in much the same manner, and for much the same purpose as the last exhibit was compiled, since this hearing was started, did you cause to be assembled information as to the rates of pay, and earnings of shop craft at main shops on certain of the railroads?

Mr. Keefe: Yes, within the last ten days this was gotten out.

Mr. Sheean: And which of the roads did you take?

Mr. Keefe: The roads that were most accessible, and which were able to give it within the time that it was called for. They were the Milwaukee Railroad, for their main shops at Milwaukee and Minneapolis; the Chicago & North Western Road, for their main shops at Chicago; the Rock Island for their main shops at Silvus; the Northern Pacific for their main shops at Brainerd and South Tacoma, and Livingston, and the car department at Pullman.

Mr. Sheean: This also was assembled in order simply to give a part of the whole picture of other railroad employes,

and the four railroads selected were thought to cover a fairly representative range of country, by having these shops at these different points thus enumerated?

Mr. Keefe: Yes.

Mr. Sheean: On the exhibit there has been shown as to each of the shops, in the month of November, 1914, the number of men employed and the rate per hour, the number of hours per working day, the schedule work hours per day, the total shop bulletin work hours for November, the total number of hours worked, the total wages for the month, the average wages per man, the men working the total shop bulletin work hours would have received, per man, for the month of November, and the average monthly bulletin shop hours for the preceding eleven months. All these shops at all these places are union shops and union rates of wages.

Mr. Keefe: I understand that all of the men shown, excepting those under the miscellaneous columns, are covered by schedules and agreements, but there are certain classes of employes which are under the miscellaneous head, that are not—

Mr. Sheean: Yes. For instance, on the last sheet, No. 16, you have, under the head of miscellaneous, certain enumerated employes who are not covered by schedule?

Mr. Keefe: That is correct.

Mr. Sheean: But as to the other crafts, the rate per hour and the other provisions as to the wage schedule are covered by the unions?

Mr. Keefe: Yes.

Mr. Sheean: You have not attempted to summarize this for the four roads as a whole?

Mr. Keefe: No, just showing what each shop at each point pays, and what the compensation was that was received for each class of labor separately.

Mr. Sheean: In the second column from the last, where you show the average wages per man, that computes the average by taking all the men employed, even though a man worked only one day, or two days; he would be counted as one man?

Mr. Keefe: Yes.

Mr. Sheean: And that, of course, would bring the average down below what was fairly representative of a month's earnings?

Mr. Keefe: Yes.

Mr. Sheean: And so, also, it might in the total wages paid, in the column preceding that; there might be some elements of overtime?

Mr. Keefe: Yes.

Mr. Sheean: And so, also, it might be, in the total wages paid, in the column preceding that, there might be some elements of overtime?

Mr. Keefe: Yes.

Mr. Sheean: Therefore, you have taken in the next to the last column, and after showing the number of men employed, have shown in the sixth column the total shop bulletin work hours and—

Mr. Keefe: Yes.

Mr. Sheean: Caused to be extended what any man's earnings would have been had he worked during the month the total bulletin work hours?

Mr. Keefe: Yes. In other words—

Mr. Nagel: The sixth column?

Mr. Sheean: Yes, in the sixth column, under the heading, "Total Shop Bulletin Work Hours for November."

Mr. Keefe: It shows 176 hours. Take the item of machinists, the first item, it shows there were 376 men employed at a rate of 41 cents per hour. The number of hours per working day was eight, but their schedule work hours per day was nine; that is the number of hours which the schedule provided they should work. The total shop bulletin work hours for November, were 176, and the total hours worked, 60,000, their wages were $24,000, so that the average wages per man, that is, dividing 376 into the wages per month, of $24,938.66, was $68.38.

The next column indicates what every one of the 376 men would have earned, at the rate of 41 cents an hour, had he been able to work the entire 176 shop working hours, in other words, that was his possible month's earnings, without regard to the amount of overtime, if he worked just the straight time. Then the last column indicates the amount of work hours that were in effect during the previous eleven months, so as to compare November work hours with what they were during the previous eleven months?

Mr. Sheean: Just to make that clear, or to see whether I

understand it or not, in your fourth column, you show the number of hours per working day, as eight. In the next column to it, schedule work hours per day, nine.

Mr. Keefe: Yes.

Mr. Sheean: Does that mean that during the month of November, 1914, all the employes who worked through the month got one hour's overtime each day?

Mr. Keefe: No, that shows that their schedule provided for a nine hour day, but because of business requirements they actually worked only eight hours, and it shows what the schedule provision is, which is for nine, but they really only work eight hours, or a total of 176 hours for the month; that is at the rate of 44 hours a week, or eight hours a day for five days, and four hours for Saturday.

The Chairman: We will now adjourn, gentlemen.

(Whereupon, at 5 o'clock P. M., January 28, 1915, an adjournment was taken to 10 o'clock A. M., January 29, 1915.)

IN THE MATTER OF THE
ARBITRATION
between the
WESTERN RAILWAYS
and
BROTHERHOOD OF LOCOMOTIVE ENGINEERS
and
BROTHERHOOD OF LOCOMOTIVE FIREMEN AND ENGINEMEN
under the Act approved July 15, 1913, *by agreement dated August* 3, 1914.

Chicago, Illinois, January 29, 1915.

Met pursuant to adjournment at 10:00 o'clock A. M.
Present: Arbitrators and parties as before.

J. H. KEEFE was recalled for further examination and, having been previously sworn, testified as follows:

Mr. Sheean: Mr. Keefe, we had reached Exhibit 23 at the time of adjournment, the general purpose of which had been explained by you. What is the situation as to there being uniformity or standardization in the matter of the rates of pay of the crafts shown on this Exhibit No. 23?

Mr. Keefe: There does not seem to be any set standard or uniformity as to the rates of pay for the same classes of labor in different portions of the country.

Mr. Sheean: And as to the uniformity in the average length of time, or the average opportunity for work in the different parts of the country in the crafts.

Mr. Keefe: There is no uniformity. It seems to be dependent upon the necessities of the country as to what the hours shall be in their shops.

Mr. Sheean: Taking sheets 1, 2 and 3 of this exhibit, Mr. Keefe, which show the Milwaukee shops of the Chicago, Milwaukee & St. Paul Railroad.

Mr. Keefe: Yes, sir.

Mr. Sheean: Now, is there a difference on the Milwaukee

Railroad as between the opportunities for work in these crafts at different points on that same system?

Mr. Keefe: Yes, sir. In the month of November, which this report covers, the total shop bulletin work hours for November was different at Milwaukee from what it was at Minneapolis.

Mr. Sheean: In the last column on each of these sheets, showing the average monthly bulletin shop hours for the preceding eleven months, in just what way was that arrived at?

Mr. Keefe: That was arrived at by each individual railroad itself making an approximation as to just what their bulletin shop hours were, not necessarily an estimate, but simply a review of their actual practices for the previous eleven months.

Mr. Sheean: So as to show the average throughout a year's time?

Mr. Keefe: Yes.

Mr. Sheean: Was there anything special to which you wished to direct attention as to the Chicago, Milwaukee & St. Paul?

Mr. Keefe: No, sir.

Mr. Sheean: Sheet No. 6 and the following sheets show the situation at different shops of the Chicago & North Western Railway.

Mr. Keefe: The Chicago & North Western Railway only show for the main shops at Chicago.

Mr. Sheean: The main shops at Chicago?

Mr. Keefe: Yes, sir. The Rock Island for its shop at Chicago and also its shops at Silvis. The Northern Pacific main shops at Brainerd and South Tacoma; for their car department at South Tacoma and at Tacoma. They also show their locomotive shops at Livingston and car department at Livingston.

Mr. Sheean: I think you said last evening that there was no average as between these different railroads, but simply showing the information as to each of the railroads at each of the shops enumerated on the sheet.

Mr. Keefe: Yes, sir.

Mr. Sheean: Now as to this exhibit, was there anything to which you wished to direct attention specially, Mr. Keefe?

Mr. Keefe: No, sir.

Mr. Byram: Mr. Keefe, this exhibit, as I understand it,

shows that in the shop crafts, in times of slack business, the work that is to be done is distributed among the whole force, rather than to exclude a portion of the men from service by the operation of seniority rules?

The Chairman: I did not catch that question.

Mr. Byram: Read it, please.

(Question read as above recorded.)

Mr. Byram: I will make that a little clearer by adding, by means of a reduction of the working hours of the whole force.

Mr. Keefe: The statement, of course, shows just the actual performances for the month of November. It does show that while their scheduled work hours, and as I understand it their schedule provides that they shall work nine hours, that notwithstanding this provision, by reason of business conditions they only worked eight hours, and rather than to lay off their men they reduced the number of working hours to a point that they are permitted to, under their schedules.

I am talking now from information that I received from the committees themselves, and the representatives of these railroads. As I understand it, that is a condition that exists on their roads in times of depression, that rather than lay off men they reduce first the shop hours, the number of hours that they work.

Mr. Byram: If that is the case, then in that respect they differ from the methods of procedure on the part of the enginemen, in that the enginemen monopolize to their oldest men, continuous service, at comparatively approximately full rates of pay, to the exclusion of the young men in the service, by the operation of the seniority rule, which excludes the young man when the older employe needs to have his service increased to keep his rate of pay fairly uniform in the service, is that correct?

Mr. Keefe: In the engine service, as I understand the operation of their seniority rules, they take care of a depression in business by the reduction in their extra board, and in the pool and extra gang crews, so as to let the remainder who stay at work, earn what they consider a reasonable wage and probably a uniform wage; it is generally a uniform wage throughout the year, as near as they can control it.

Mr. Byram: Those men that are excluded under the operation of the seniority rule, are always the youngest men?

Mr. Keefe: Yes, sir.

Mr. Byram: And instead of shortening the working period of the whole force in times when work is scarce, the effect of that seniority rule is to exclude the young men from the service, in order that the older men may have full wages and full time, as far as work is provided?

Mr. Keefe: I think that is the practice.

Mr. Byram: In that respect it differs from those crafts, because when the work is scarce in the shops the hours are reduced and the whole force suffers a share of the depression in business, and the scarcity of work?

Mr. Keefe: Yes, sir.

The Chairman: Is that plan, as respects the enginemen, adopted upon the theory that the younger men would be more likely to secure employment in other vocations than the older men?

Mr. Keefe: Why, I think it is on the theory that the older men want to enjoy and expect the full privilege of their seniority benefits, and they do it, I think, for their self-interest, first. That is my opinion.

Mr. Byram: Is the seniority rule one that is advocated strongly by the men, or is it advocated by the railroad companies?

Mr. Keefe: It is rule that is asked for and demanded by the men.

Mr. Byram: So that any of the consequences of the operation of the seniority rule would rest upon the men themselves rather than the companies?

Mr. Keefe: I so consider it.

Mr. Park: Mr. Keefe, from your experience, are changes frequent as the runs change, or vacancies in engine service occur that may be preferable? That is, does one engineer fall into a better run, because there is more compensation?

Mr. Keefe: There are constant changes in the engine service, by reason of openings of better positions for the engineers, in which they advance according to their seniority. In other words, every day's service for an engineer means a better opportunity for him to make additional wages.

Mr. Park: And it is universally the practice that in the

order of the seniority, they take the preferred run, with the largest pay?

Mr. Keefe: They take the runs which they consider preferable for themselves, for their own interests.

Mr. Park: Does it appear in the schedules of the shop men, that the railroad companies are obliged to reduce the working hours, before they can reduce the forces?

Mr. Keefe: That is my general understanding, from casual inspection I have made of the schedules of the shop crafts.

Mr. Park: The shop crafts insist that in order to distribute the money available for certain classes of employment, that the hours of service must be reduced, before any of the men can be taken out of the service?

Mr. Keefe: That is my general understanding.

Mr. Park: That is all.

Mr. Sheean: That is reducing the hours down to a certain specified amount in the schedule?

Mr. Keefe: Yes, there is a certain amount where they can make the reduction.

Mr. Sheean: Before any reduction in the force, the hours shall be reduced to so many hours per week, for the shops?

Mr. Keefe: Yes, sir.

Mr. Sheean: That is all. You may cross-examine.

RE-CROSS EXAMINATION.

Mr. Stone: In regard to this Exhibit No. 23, Mr. Keefe, do I understand that all four of these roads—that this is for union labor, organized labor and these roads have a working agreement with all of these crafts shown here?

Mr. Keefe: Not with all the crafts, Mr. Stone. If you refer to Sheet No. 1, they have a schedule and an agreement for all the classes of labor shown on sheet No. 1 and sheet No. 2, down to the item "Miscellaneous"—under the head of "Miscellaneous," there is no schedule of work hours per day shown, and I understand they have shown no schedule or agreement with these particular classes of employes, shown under the head of "Miscellaneous." In the car department, they have a schedule, as shown on the bottom of sheets 2, 3, and part of sheet No. 4, and also for the locomotive shop employes, shown on sheet 4, above the head of "Miscellaneous."

Mr. Stone: Are we to understand from your testimony, or from your evidence, rather, that shop forces are not reduced in times of depression—the number of employes?

Mr. Keefe: They are first reduced to any number of hours they shall work; then the reduction is made in the particular employes, as I understand it.

Mr. Stone: First, reduced from nine to eight hours, probably a little less than eight hours.

Mr. Keefe: Probably a little less than eight hours. An average, I will say, of forty hours a week, as I remember some of the schedules.

Mr. Stone: Then after that, then what?

Mr. Keefe: Then I think there is a reduction in the force.

Mr. Stone: Is there any provision providing how they shall be reduced, after that point is reached? The younger men are taken off first, or are they at the mercy of the shop foreman?

Mr. Keefe: I am not clear as to just what that does provide in that respect, Mr. Stone. If you wish, I can file copies of the agreements.

Mr. Stone: I have got all the agreements over in my room. I was wondering if you had them when you made this data.

Mr. Keefe: This data was made up by the individual railroads and not by myself, Mr. Stone.

Mr. Stone: But you do not know whether they have any provisions in their schedules, or not, for the reduction of force, after they reach the minimum limit.

Mr. Keefe: I do not know sufficiently definite to testify one way or the other.

Mr. Stone: Do you know whether they have time and a half for overtime, in all these shop crafts?

Mr. Keefe: I do not believe all of them, but a certain number have provisions for that.

Mr. Stone: Are they not paid time and a half, for night work and for Sundays, and some of them are paid double time?

Mr. Keefe: I do not know clearly about the double time feature. I know they have time and a half, under certain conditions and for certain classes of men.

Mr. Stone: Is it not a fact, if you would send one of these machinists or boiler makers down the line, to make repairs, that

he would be paid continuous time, from the time he left until he got back?

Mr. Keefe: I am not certain on that, Mr. Stone. I have got the schedules here that I can file, and let them speak for themselves.

Mr. Stone: I am trying to bring out really what this schedule does mean. I have got all the schedules over in my room.

Mr. Keefe: This shows absolutely what the men received, whether it was in the nature of overtime, straight time or any other class of payment, in the month of October.

Mr. Stone: You do not separate the overtime from the actual wage earned, do you?

Mr. Keefe: No, sir. But if you would like to, I can very easily have that separated and file it as a special statement, if you would like to have it.

Mr. Stone: I am not caring particularly about it. I was just wondering if it was all included.

Mr. Keefe: It is my understanding that the amount of overtime is very, very small, and is entirely within the control of the railroad companies, and they have the right and do exercise it, of saying whether or not overtime shall be worked.

Mr. Stone: Is it not a fact that overtime is in control of the railroad company so far as train crews are concerned; that they have a right to say whether they shall work overtime or not?

Mr. Keefe: Not to that same extent as they do in shop crews, not at all.

Mr. Stone: In this first column, the Milwaukee shops of the Chicago, Milwaukee & St. Paul, you show 376 men—

The Chairman: What do you mean by that, that they do not have the same control? That is, that circumstances are such that they cannot have?

Mr. Keefe: Circumstances which are entirely within the control of the enginemen themselves, which the supervising officers of the railroad are not able to counteract or oversee or prevent.

Mr. Park: Such as engine failure and man failure and washouts and wrecks?

Mr. Keefe: In the performance of their duties.

Mr. Park: And bad weather and consequential delays from failure on other trains?

Mr. Stone: Are we to infer from that that an engineer and fireman start out and do just as they please and work as long as they please?

Mr. Keefe: Oh, I did not give that inference. I say under certain conditions and certain circumstances the men have it entirely in their own control.

Mr. Stone: Engine failures are under control of the men, are they? They fail out on the road on purpose?

Mr. Keefe: I am referring to the hours of work.

Mr. Stone: Do you believe that any engineer or fireman deliberately works overtime on purpose, because he wants to?

Mr. Keefe: I prefer not to answer that question, Mr. Stone.

Mr. Stone: Well, you have just made the statement that the railroads have no control over it. Someone must have control over it.

Mr. Keefe: It is my opinion that if the time and a half for overtime were on there there would be more delay than there is now. There is an incentive now for the men to get into the terminals in as quick as possible time.

Mr. Stone: Has that been the experience with the shop crafts, where you have time and a half for overtime, that it is an incentive for them to put in overtime?

Mr. Keefe: It is entirely within the control of the shop organization as to just what overtime they shall or shall not work, Mr. Stone.

Mr. Stone: Then we are to understand that if an engineer or fireman, you were satisfied in your own mind, that they were putting in overtime in order to earn it, that you would not have any control over that feature of it as an operating officer?

Mr. Keefe: I did not say any control. We would have some, but not entire control over that.

Mr. Stone: Don't you get an explanation of all overtime, of how it is made?

Mr. Keefe: We endeavor to, yes, sir.

Mr. Stone: And you keep a close check on it, on that part of that expense?

Mr. Keefe: Yes, we endeavor to, yes, sir, as well as all other items of expense.

Mr. Stone: If it became evident that your expense account was creeping up in that particular line, you would probably scrutinize it, would you not?

Mr. Keefe: Just as any other item of expense, Mr. Stone.

Mr. Stone: And if some crew were doing more than their share of it they would be called in to explain, wouldn't they?

Mr. Keefe: To the best of their ability, yes, sir.

Mr. Stone: And if the explanation was not entirely satisfactory, something would probably happen, would it not?

Mr. Keefe: Well, there are a lot of things that are not satisfactorily explained that nothing does happen on, Mr. Stone.

Mr. Stone: Will you kindly give us a few examples, so we can understand just what you mean?

Mr. Keefe: Why, there are cases where the time it takes to do work at certain stations by engine crews is explained, and it is not explained to the satisfaction of the operating officials, but they accept the explanation in the spirit in which it is made, not that they are entirely satisfied with it themselves. I have had explanations given to me a lot of times that I was not entirely satisfied with. Every operating official has the same experience.

Mr. Stone: But in the absence of any proof to the contrary, you give a man the benefit of the doubt, is that it?

Mr. Keefe: Yes.

Mr. Stone: Is not that the generally accepted practice the world over?

Mr. Keefe: It is with me, Mr. Stone; I think it is.

Mr. Stone: Is it not the general practice in all vocations that the man is entitled to the benefit of the doubt?

Mr. Keefe: I think so.

Mr. Stone: In this number of men employed here, if a man worked one day would that show as one of the number of men employed?

Mr. Keefe: Yes.

Mr. Stone: If he only worked one day in the month?

Mr. Keefe: Yes, and it was for that reason that the added column was placed in there about the average wage per day—

Mr. Stone: I suppose that is the typical man, what he could have earned, that you show in that column?

Mr. Keefe: No, that is not the typical man, that is just showing what would have been the wages per man if he had worked every hour of the shop bulletin working hours for that month. In other words, if he had put in every hour that it was possible for him to work, he would have earned that much money.

Mr. Stone: But the fact remains that with the men you show in the first column, a man working one or two days out of the month, and then through sickness or accident, or of his own volition, laying off the rest of the month, that would scale your whole general average down?

Mr. Keefe: Yes, sir, as to the average per man, of what he actually earned.

Mr. Stone: These men who work at these crafts, sleep at home every night, and they are located at one point permanently, and have three warm meals every day, do they not, and regular hours?

Mr. Keefe: As to their being home every night, of course they have that opportunity. As to the three warm meals, I don't know what the practice generally is. There are quite a number of them carry their mid-day lunch with them; quite a number of them go home to meals also.

Mr. Stone: What is the insurance risk of men in this class of service, compared with locomotive engineers and firemen?

Mr. Keefe: I am speaking now just from memory; as I recall it, it was the very next group to the engineer, the hazardous class. In looking at one of the insurance risk books the other night, after some of the testimony put in by your men, I noted that the shop crafts were next to the engineers, as I recall it.

Mr. Stone: And in that you include all of these different classes of shop crafts, do you, in the hazardous class?

Mr. Keefe: That is my recollection.

Mr. Stone: You spoke of the reduction of hours of the shop men from nine to eight before they commenced to take men off. Is it not a fact that in times of depression there is an automatic reduction, because the men work on the mileage or piece work system? Don't they have a big reduction before you commence to take men off?

Mr. Keefe: You mean in what class of service?

Mr. Stone: Engineers and firemen I am talking about now.

Mr. Keefe: The engineers and firemen, whenever there is a reduction in the amount of business, always make a request for a reduction in the number of crews assigned to the through or irregular service, and to the extra board.

Mr. Stone: They don't make that until after the depression has been in effect for 30 days, do they?

Mr. Keefe: Not always; it is made before the expiration of the thirty days, at times.

Mr. Stone: It is also covered in the schedule, is it not, that no man shall be taken off until it gets down to a certain minimum, away below the normal current of traffic?

Mr. Keefe: I don't quite understand your question, Mr. Stone.

Mr. Stone: For example, the men are running perhaps 3,500 or 4,500 miles per month during normal traffic, and a number of schedules provide that no one will be taken off until they get down to 2,400 or 2,600 miles, do they not?

Mr. Keefe: You are referring to through freight service, chain gang service as I understand it.

Mr. Stone: Yes.

Mr. Keefe: Yes, sir, some of the schedules have a 3,000 mile limit; some of them have a 2,600 mile limit, and I think a few of them less than that before a reduction is made.

Mr. Stone: And they also have a provision that as soon as the men are again making 3,000 miles, that more men shall be added, do they not?

Mr. Keefe: I don't recall that provision in any of the schedules, Mr. Stone.

Mr. Stone: Is it not a fact, Mr. Keefe, that in times of depression the men do divide up and try to keep as many men working as possible? Don't you know that many of the roads in the Western country, if you are familiar with their payrolls, that on many of them where their wages are away below normal conditions, they are still working?

Mr. Keefe: I have not ascertained that fact to any extent, as your question implies, at all, Mr. Stone.

Mr. Stone: Why did you use the month of November, 1914, in this exhibit, as compared with October, 1913, in the others?

Mr. Keefe: November was used simply because that was the last month available. I have since, thinking that question would be raised, asked for the information to be compiled for October, 1913, and that will also be submitted. There was no purpose in using November, 1914, other than to show the actual conditions at the time, and it never occurred to me that there would be any criticism of our not using October, 1913, until after the information had been received, and fortunately it then occurred to me that possibly that question might be raised, and I hav undertaken the compilation of similar data to this for October, 1913, and that will be submitted, as I say.

Mr. Stone: You said, in reply to a question of Mr. Park, that seniority rules were wanted by the men. Are we to understand that the seniority rules are not wanted by the companies?

Mr. Keefe: The advocates of the seniority rule are the men themselves, and the insistence upon putting it into the schedule was due to the men, and not to any companies.

Mr. Stone: Do the companies object to the seniority rule?

Mr. Keefe: I can't answer that for all of the companies.

Mr. Stone: Well, answer it for your own road.

Mr. Keefe: For myself, I haven't any objection to the seniority rule when worked out the way we have it on our road.

Mr. Stone: There is nothing in the seniority rule that keeps a man on the job if he cannot deliver the goods, is there? It is not a hard and fast rule, that a man must be put on the job and kept there, unless he can deliver the goods, is it?

Mr. Keefe: Well, that is a very deep and broad question, Mr. Stone.

Mr. Stone: Well, so much has been said about the seniority rule that we ought to bring out the good and bad phases of it. Is it not a fact that all the seniority rules in the Western territory, or in all of our schedules, have a provision whereby the operating official is the judge as to whether the man is efficient? It says that the merit being equal the senior man shall do thus and so?

Mr. Keefe: That is in our schedule. I did not make a compilation of all the schedules, but I gather from your question that it is perfectly agreeable to the engineers and firemen to have that understanding of the rule.

Mr. Stone: Referring then—

The Chairman: Just one moment, Mr. Stone.

Mr. Stone: Pardon me.

The Chairman: As bearing on that point, suppose a man was given employment by virtue of the seniority rule, and it should turn out that he was not a competent and efficient man; is there any doubt about the authority of the operating official to displace that man and put another man in his place?

Mr. Keefe: Not under our schedule, that we are working under and that I am entirely familiar with.

Mr. Stone: No, and not under any schedule in existence, of this organization.

The Chairman: That is the point I wanted to bring out.

Mr. Stone: We will reserve the right, you understand, Mr. Chairman, if we believe a man has been unjustly discriminated against to take his case up and try to adjust it.

The Chairman: The point I was asking about was whether it would allow an inefficient man to be retained, and as I understand you, it would not?

Mr. Stone: No, there is no question but what they could take him out of the service.

The Chairman: The witness had hesitated on that point and I wanted to see if there was any doubt about that statement.

Mr. Keefe: I only hesitated in replying for the entire country, Mr. Chairman. As for our own road I could tell. My hesitation was made on something for the country as a whole, that I had not made any examination of.

Mr. Burgess: Mr. Stone, you stated that you have no schedule but what has that provision. Did you mean the entire country, West, East and Southeast?

Mr. Stone: Every schedule that I am familiar with, Mr. Burgess, in some form or particular—may not be worded just that way—says seniority shall prevail, merit being equal, or the general manager to be the judge, or the company officials to be the judge.

Mr. Burgess: That is all.

Mr. Stone: Did you ever railroad, Mr. Keefe, before we had seniority rules on railroads? Were you ever connected with a railroad where there were no seniority rules?

Mr. Keefe: No, sir.

Mr. Stone: You do not know what made it necessary for the men to have the seniority rule, then, do you?

Mr. Keefe: Not personally, no.

Mr. Stone: Well, you know from the history of railroading what brought it, do you not?

Mr. Keefe: I have heard a great many contentions on either side, as to what was the cause of the seniority rule, and I have not made up my own mind as to what was the real reason.

Mr. Stone: Did you not recently have a rule on the Gulf, Colorado & Santa Fe, that engineers would not be taken off until the mileage got below 1,300 miles, in chain gang service?

Mr. Keefe: That was changed a number of years ago, to 2,000 miles, as I recall it now.

Mr. Stone: 2,000 now, but you had it for a number of years down to 1,300 miles, before you even reduced the list?

Mr. Keefe: That was with the extra engineers in the chain gang.

Mr. Stone: Well, they are engineers, and trying to make a living?

Mr. Keefe: But you said the chain gang crew. I want to correct that as applying to extra engineers.

Mr. Byram: Mr. Keefe, do you believe that the operation of the seniority rule, without regard to the justice of the rule or the correct principle on which it is based, operates for the benefit of all the engineers and firemen in case of a depression in business, where it is necessary, either to reduce the general average pay, or to let some of the younger men go, as the seniority rules provide? Do you feel that the operation of the rule in that event —of this rule which may, in other ways be very desirable, is for the benefit of the men, as a whole? In other words, do you think it would be better for the man as a whole, in case of depression of business, if their right, under the senority rule, to exclude from the service all the young men, so that the older men can have full pay and full returns for their labor, rather than to divide to some extent the work that remains to be done, among the whole craft, until business revives again, taking the case of seasonal fluctuations in business into consideration?

Mr. Keefe: Why, considering the engineers and firemen as a class, in their entirety, both the new and the old men, it would be better for the class, in my opinion, if there could be

a more equitable distribution of the opportunity to earn wages, than there is under the present manner in which the seniority rule is worked.

Mr. Byram: Then, if I understand you correctly, you approve of the seniority principle of the rule, but you feel that in that respect it operates unfairly upon the engineers and firemen as a whole, in times of depression in business?

Mr. Keefe: It does not afford an equal distribution of wages available for the men, in the way it is worked now, Mr. Byram.

Mr. Byram: Then, in that case they do not share the seasonal fluctuations in the earnings, really among each other, the same way that the unions in the shop crafts do?

Mr. Keefe: That is my belief.

Mr. Byram: They apparently take a different view of what their duties are to each other, the shop crafts and the engineers and firemen.

Mr. Keefe: Yes, sir.

Mr. Stone: Is it not a fact, Mr. Keefe, that as soon as the shop crafts get below eight hours, that they apply exactly the same principle as the engineers?

Mr. Keefe: I do not believe it is eight hours on an average, per day. I think it is forty hours per week, or probably forty-four hours; four hours for Saturday.

Mr. Stone: Because they have Saturday a half holiday, a great many shops, and only work four hours?

Mr. Keefe: I think they work Saturdays, when their business requires them to work Saturdays.

Mr. Burgess: Mr. Keefe, in periods of depression, or where the railway companies feel that it is necessary to make great retrenchments, they sometimes reduce the official staff, do they not?

Mr. Keefe: Yes, sir, sometimes.

Mr. Burgess: Would you think it would be more equitable distribution of the funds that are paid to the official staff, if they would divide up their earnings?

Mr. Keefe: Well, they do that. I have been in a place where they made a reduction of my wages, rather than make a lay-off of men.

Mr. Burgess: There is sometimes, though—you have just stated where they do retrench, by removing some of the officers?

Mr. Keefe: Yes, they do. I hope it is rare, but they do that.

Mr. Byram: Now, what proportion of the men interested in this service, the engineers and firemen, are usually affected by the seasonal fluctuations in the business of these railroads? For instance, what part of the service—what proportion of these men are, by reason of the fixed character of the trains they operate, insured of steady employment, regardless of the volume of business?

Mr. Keefe: That is rather a difficult question to answer definitely, Mr. Byram, but from the general knowledge that I have, I should say that probably 60 per cent of the men are in assigned service, and that there is only 40 per cent of the men, which would include the extra men, as well, and the men in through or irregular freight service that are affected by the seasonal fluctuation in the business.

Mr. Byram: So that only 40 per cent of this whole craft, according to your estimate, are involved in this question at all?

Mr. Keefe: That is my opinion.

Mr. Byram: Is there ever a time when the through freight business of these railroads entirely disappears, so that there is no through freight runs at all?

Mr. Keefe: No, sir.

Mr. Byram: Then to find out how many of these engineers and firemen on these railroads are affected by the fluctuations in business, we would also have to consider the proportion of the through or irregular freight or pool service, as it is called, that always operates?

Mr. Keefe: Yes, sir.

Mr. Byram: Even in depressed times, there is always some of it?

Mr. Keefe: Yes, sir.

Mr. Byram: Then, as I understand it, the proportion of this entire class of service that is affected by the seasonal fluctuations in business, is that portion of the through freight or pool service that is not required, because of the depressions in business, and is eliminated by the operation of seniority rules?

Mr. Keefe: A certain amount of the extra board.

Mr. Byram: How much would you think that would add to the 60 per cent, which is more or less fixed?

Mr. Keefe: To give a general estimate of it, at least one-half of that would still be fixed anyway.

Mr. Byram: That would mean, then, that 80 per cent of the engineers and firemen employed on these railroads, are not affected by the seasonal fluctuations of business?

Mr. Keefe: Some of that 20 per cent is affected more or less in their earnings. That 20 per cent are affected by the seasonal depression, in that they are not able to make as much money throughout each of the months as they would be. They have had that difference between the other.

Mr. Byram: Yes, but I understood you to say that the operation of the seniority rule reduced the board, so that the men who were working in through freight service would run at least by their schedules, 3,000 miles a month, and in some cases 2,600 miles a month, or even 2,400 miles?

Mr. Keefe: I did not want to create the impression that the operation of the seniority rule made the men earn as much money exactly, in light months, as it did in the very heavy months, because that has not been my observation; that there is a certain falling off of the wages of the men, in through or pool service, during the months of slack business, but not anywhere near to the extent that there is in the other classes of service.

Mr. Byram: Then this other 20 per cent of the through or irregular freight service, is affected, to some extent, by the depression in business, but not deprived of the capacity to earn wages entirely?

Mr. Keefe: From what they consider a reasonable wage.

Mr. Byram: And that amount is fixed by themselves, in negotiations with the company in their schedules, limited in some cases to 3,000 miles a month, or 2,600 miles, for a thirty day month?

Mr. Keefe: It is a matter of agreement, in that respect.

Mr. Stone: Do I understand you, Mr. Keefe, that 20 per cent of the men on the road, go right along, year in and year out, on practically an average wage? Is that your testimony?

Mr. Keefe: 20 per cent?

Mr. Stone: 20 per cent of the men, or 80 per cent of the men, which?

Mr. Keefe: 80 per cent.

Mr. Stone: 80 per cent of the men, it does not fluctuate?

Mr. Keefe: There is some fluctuation, but not any material fluctuation. If there is any fluctuation, it is because of the men's desires themselves, but in the assigned service, the runs are there for the men. Whether they avail themselves of that opportunity, that is their concern.

Mr. Stone: Mr. Chairman, I think now it is evident, more than ever before, that it will be necessary for us to have the payrolls in here, to prove to you that that is not correct; that 80 per cent of the men do not go along, year in and year out, or any large per cent of the men.

Mr. Byram: Mr. Keefe, did I understand you to say that these men did work, or that they had the opportunity to work?

Mr. Keefe: I said they had the opportunity to work. Whether they absolutely did it themselves or not, is another question.

Mr. Byram: The opportunity to work is assured to them by their rules?

Mr. Keefe: Yes, sir. We have an exhibit that brings that point out very fully, to my belief.

The Chairman: Adopting the seniority rule, by which the younger men, on certain occasions, are temporarily thrown out of employment, was it considered that sooner or later they would acquire seniority rights, and that thereby the matter of adjustment of employment would be equally balanced between them, in the long run?

Mr. Keefe: Well, of course, all the young men that once enter the service, do not come back again when the business opens up again.

The Chairman: But I am assuming that they go back in service. Is it not a fact that sooner or later they acquire the seniority rights, by which they share the benefits that had been accorded their predecessors?

Mr. Keefe: Yes, sir, every day their seniority lasts puts them in line with their predecessors.

The Chairman: To that extent, then, in the long run, they are on an equality, are they not?

Mr. Keefe: Those that remain in the service constantly.

Mr. Stone: Is it not a fact that the incentive to the man to acquire seniority makes him stay there and work under conditions almost intolerable in many cases, in the hope that he will get to one of those runs some day?

Mr. Keefe: That is not true, as a general proposition.

Mr. Stone: It is not true that men stay in one place and try and acquire seniority, so that they can have the benefit of this better service and better wages, if they get to it?

Mr. Keefe: That is a different question than the first one you asked.

Mr. Stone: It differs in this way: I said they put up with intolerable conditions. If there was no hope for the future and the man knew it was only his daily wage, do you believe he would work under the present conditions that he does work?

Mr. Keefe: Read the question, please.

(Question read as above recorded.)

Mr. Keefe: Undoubtedly everything in connection with their employment as engineers or firemen, influences their decision as to whether or not they shall take employment with and remain with railroad transportation companies. There is no compulsion on the part of the railroads.

Mr. Stone: I understand, of course, there is no compulsion. A man does not have to work at all, but necessity compels him to work. Is it not a fact that even in times of depression, there are numerous cases in this western territory, within the last few months, where the railroad officials have refused to add more men to certain runs at the request of the men, trying to keep more men in service?

Mr. Keefe: I don't know of any, Mr. Stone, of that kind, personally.

Mr. Stone: Is it not a fact that on numerous railroads in the West that you have assigned regular engineers to regular engines in pool service, and you refused to have more engineers than you have engines; in other words, you will not pool the men in the engines any more; you have regular men?

Mr. Keefe: I don't know of any condition of that character now, Mr. Stone. I have not heard of any.

Mr. Stone: Is it not a fact that you keep a number of engines out of service and keep them white leaded, in order to get

the maximum amount of service out of the other engines in the service?

Mr. Keefe: We keep in service such number of locomotives as is considered the most economical and advantageous way of operating the properties. There are times when we have equipment that is not in use, and it is held for the demands of the public, which we are expected to provide for.

Mr. Stone: It is held for conditions when business gets above normal. But you do try to get a maximum amount of mileage out of each locomotive during the month, do you not?

Mr. Keefe: Certainly.

Mr. Stone: And if it is necessary, you take some engines out of service in order for the rest to run out more mileage, do you not?

Mr. Keefe: I won't subscribe to that entirely.

Mr. Stone: So, it is a fact, if you don't subscribe to it entirely, you subscribe to it in part, at least, it is not seniority that takes men out of service, but the railroads do it themselves, by taking the engines out of service.

Mr. Keefe: Taking engines out of service doesn't take the men out of service necessarily.

Mr. Stone: Two men could not run one engine very well at the same time on the same day.

Mr. Keefe: Not in assigned service, no, sir.

Mr. Stone: Nor in any kind of service?

Mr. Keefe: No, not in any kind of service. I cannot understand what your question is, Mr. Stone. It is true that the same number of locomotives are not in service every day in the year.

Mr. Stone: Perhaps, in normal conditions you will have twenty engines handling slow freight on a division. Under depression like you have now, it is down to ten engines, and you have an engineer assigned to each engine, and you insist on that engineer running that engine. You don't want to put twenty engineers running ten engines; you want ten engineers to run those ten engines. Isn't that a fact? On many of these Western roads?

Mr. Keefe: Not of my personal knowledge.

Mr. Stone: Is it not a fact that seniority does give to the

railroads experienced men on these superior runs that men acquire through years of experience?

Mr. Keefe: It gives them the men that are oldest in the service of the company, and therefore should be the most experienced men.

Mr. Stone: And therefore, merit being equal, they get the run, and the result is you have old experienced employes on your important runs at all times, under those conditions, do you not?

Mr. Keefe: Generally, yes.

Mr. Stone: I believe you said you never worked for a road where they had no seniority?

Mr. Keefe: No, I did not.

Mr. Stone: And you only know in a vague way what brought seniority?

Mr. Keefe: I have heard a number of discussions as to what brought about seniority, Mr. Stone, but I have not reached any definite conclusion as to what was the actual fact.

Mr. Stone: You never helped keep some local official in fresh eggs or spring chickens, or brought him a Christmas present every year, and all that sort of thing, like others of us have who have been in the service longer?

Mr. Keefe: No, sir.

Mr. Stone: You never had that experience?

Mr. Byram: What do you mean by that, Mr. Stone?

Mr. Keefe: I never heard anything of that kind definitely asserted.

Mr. Stone: What do I mean by that?

Mr. Byram: Yes.

Mr. Stone: Just what I said.

Mr. Byram: Well, do you mean that the engineers and firemen bribe superintendents to keep their positions?

Mr. Stone: No, I would not be guilty of using such a word as "bribe."

Mr. Byram: Is that the impression that you intended to convey?

Mr. Stone: There are numerous cases, if we want to dig them up, where they did not bribe, they just took an actual commission out of their wages every month.

Mr. Byram: That was the impression you wanted to convey, was it?

Mr. Stone: That you got the good will of your immediate superior officer in that way.

Mr. Byram: Your impression that you wanted to convey was that these men at some time in the past influenced the officers of the company to favor them, by making them gifts? Is that it?

Mr. Stone: No question about that, Mr. Byram. It is nothing unusual for an operating official to come to a road and bring his favorites right with him and put them on the best runs?

Mr. Keefe: Today?

Mr. Stone: No, not today; we have seniority now. It used to be most common.

Mr. Byram: You are referring to something in the past?

Mr. Stone: Yes.

Mr. Byram: Not to present conditions?

Mr. Stone: No, not to the present group of officials at all. We have got seniority, and have had for quite a long time. That is all.

Mr. Sheean: Mr. Keefe, speaking of these assigned runs, and men being assigned to them, is it not a fact that on many of these runs—well, take as an illustration the runs between Chicago and Milwaukee, a man running up in two hours in the morning and back in two hours in the afternoon, is it not a fact that runs of that sort are frequently manned by three crews, one man running twenty days and then laying off for ten days, so as to have swing men get a part of that employment on assigned runs?

Mr. Keefe: In analyzing the October payroll, I saw where that condition had applied in actual cases on certain runs.

Mr. Sheean: And the matter of whether the work on assigned runs shall be divided up between different crews, is a matter of local arrangement between the officers and the men on that particular road?

Mr. Keefe: Yes, sir.

Mr. Sheean: Wherever the earnings on the run would produce more compensation than the men think any one man ought to have, if made every day, that is permitted to be divided up, is it not?

Mr. Keefe: By the men; generally at the request of the men.

Mr. Sheean: I mean by the railroads, if the men want it divided up?

Mr. Keefe: Yes.

Mr. Sheean: Even though seniority would give them the full thirty days on that run, if the men entitled to the run arrange to let a third crew in and participate in the run, that is done, is it not?

Mr. Keefe: In some cases; I wouldn't say entirely, because I am not certain it has always been done that way.

Mr. Sheean: Now, as to this Exhibit 23, as to the queries about schedules containing provisions about time and a half, and containing provisions for paying men when they are taken from one shop to the other, and in all of these other things, after all is said and done, the fact remains that with the time and a half, these men, in this month, were earning $50, $60 and $70?

Mr. Keefe: Yes, sir.

Mr. Sheean: And the time and a half was contained in the schedules then?

Mr. Keefe: Yes, sir.

Mr. Sheean: Working all the time that was available?

Mr. Keefe: Yes.

Mr. Sheean: And, whether it was $50, $60 or $70 earned in these various shop crafts on the different roads, it was with these various provisions, whatever they may be, in these schedules?

Mr. Keefe: Yes, sir; these earnings include their total earnings that they received; from whatever source they were received, they were secured under the terms of their agreement.

Mr. Sheean: In the last column is shown what the man, if working every hour, for which opportunity was given in that shop, through that month, could have earned whatever the provisions of the schedules were as to time and a half, or any other provision?

Mr. Keefe: No, that is the straight time without any overtime taken into consideration. It is the straight time. That is the preceding column to the last one.

Mr. Sheean: That is, however, a man working all of the bulletin shop hours?

Mr. Keefe: Yes, sir.

Mr. Sheean: Do the provisions of the schedule vary as to the amount that is assured when the pool or the board is cut?

Mr. Keefe: Yes, sir.

Mr. Sheean: That is a matter of local arrangement?

Mr. Keefe: It is a matter of agreement between the company and the men, on each of the individual railroads.

Mr. Sheean: As to how low the earnings of the men in the pool shall go, or the board shall be cut?

Mr. Keefe: Yes.

Mr. Sheean: And varies on different roads?

Mr. Keefe: Yes.

Mr. Sheean: I think that is all.

Mr. Nagel: Mr. Keefe, on some of the roads the time allowance stands upon the half hour basis, I suppose; that is if less than half an hour is lost, no time is allowed, but if a half hour or more than a half hour is lost, a full hour is allowed?

Mr. Keefe: Yes, sir.

Mr. Nagel: At an earlier stage I asked a witness whether the roads got the benefit of that rule as often as the engineers, and I was answered in the affirmative. Is that your observation or opinion?

Mr. Keefe: It is my opinion, Mr. Nagel, that it is a give and take rule; as to whether the company makes more or the men make more by it, I really have not made any investigation to determine. My belief is that it is a give and take rule.

Mr. Nagel: Then you do not believe the result is unfair to either party?

Mr. Keefe: That is my opinion. We have that rule on our railroad.

Mr. Nagel: Does the presence of a conductor in any sense provide a check upon the loss of time?

Mr. Keefe: Of course, the conductor is the man in charge of the crew, but I apprehend, that if time and a half for engine crews be allowed, it will only be a question of time until the train crews receive time and a half.

Mr. Nagel: Has the conductor any authority with respect to the question of speed?

Mr. Keefe: That is a difficult question to answer. He is in charge of the train. As to whether or not he can, if you

please, insist upon an engineer running faster than an engineer wants to run, I have my doubts about that.

Mr. Nagel: Every passenger has the impression that the conductor is in charge of a train, and I was wondering just what it comes to. Just what is his authority?

Mr. Keefe: The book of rules provides that the conductor shall be in charge of the train.

Mr. Nagel: I have read many a paper contract without being able to see just what it came to. In practice, what is the result?

Mr. Keefe: In practice, the conductor is the man that is in charge of the train.

Mr. Nagel: Is he supposed to be competent to inquire into the question of whether an engine is doing what it should do, on a particular run?

Mr. Keefe: His general knowledge of railroading should give him that experience, to determine it to a reasonable degree.

Mr. Nagel: But in practice he would not be apt to say very much on the subject?

Mr. Keefe: No.

Mr. Burgess: As Assistant General Manager, Mr. Keefe, do you intend to leave the impression that the conductor of a train, in the event a train was not making its running time, would not inquire of the engineer what the reason was?

Mr. Keefe: No, I have not left the impression that he would not make any inquiry as to what was the cause of a delay.

Mr. Burgess: Would he not report those delays, and just what caused them?

Mr. Keefe: Undoubtedly, to the best of his knowledge and ability, he would make a correct report.

Mr. Burgess: And if he did not know what caused the engine to lose time, would he not ask the engineer?

Mr. Keefe: Yes, generally accepting the engineer's statement.

Mr. Burgess: I understood you to say a few moments ago, that the control of overtime was entirely in the hands of the crew. If a despatcher, assuming that he was a perfectly competent and efficient despatcher delayed the trains by orders, which in the aggregate, amounted to four or five hours, would

the engineer or conductor, in any manner be responsible for that delay?

Mr. Keefe: No. I just want to make a correction as to the first part of your question; I do not want to be considered as giving assent to the first part of your question. But, answering the latter part of your question as to the responsibility for the delay, the conductor and engineer would not be held responsible for the delay occasioned by a despatcher.

Mr. Burgess: And if the conductor of the train received an order to unload ties or road way material, or do station switching on a through freight train, would the engineer and conductor be responsible for that?

Mr. Keefe: To the extent of the time that they unloaded the freight, and also did the station switching.

Mr. Burgess: They would be responsible?

Mr. Keefe: To the extent of the time consumed in doing that class of work, yet, sir.

Mr. Burgess: If they performed the service as quickly as it could be performed, would they be responsible for the delay?

Mr. Keefe: No, sir.

Mr. Burgess: If an engineer, in taking an engine out of the roundhouse, said to the master mechanic, the roundhouse foreman, or the officer in charge, "This engine is leaking," and he was directed to take that engine out, and the engine failed, would the engineer be responsible in that case?

Mr. Keefe: I would not hold him responsible myself, no, sir.

Mr. Burgess: If the conductor received an order to fill out to a certain amount of tonnage, which necessitated the doubling of one, two, three or four hills, would the engineer or conductor be responsible for the delay in that case?

Mr. Keefe: To the extent of the time that they were performing those doubles.

Mr. Burgess: But, as Assistant General Manager, you would know a reasonable amount of time that would be required to double, and if the time consumed was no greater than what it should be reasonably, in reasonable and ordinary performance, would the conductor and engineer be responsible for that delay?

Mr. Keefe: No, sir.

Mr. Burgess: Thank you.

Mr. Park: Mr. Keefe, if the engineer took the engine out with half a tank of water, and that fact was not discovered until he ran out of water, and had to cut off his engine and leave his train on the main track and go to a water tank to replenish the supply, would not that be the fault of the engineer?

Mr. Keefe: It would be the fault of the engine crew for not complying with the requirements to make a proper inspection of the supplies in their locomotive.

Mr. Park: If the conductor went over to the engineer and asked him why he was not making the time, and he told him that there was something wrong in the front end, that he thought the steampipes were leaking, would the conductor have any means of verifying that?

Mr. Keefe: He would accept the engineer's statements.

Mr. Park: If the engineer told him that the left-hand injector was not working, would the conductor have any means of verifying that?

Mr. Keefe: He would accept and report that as the cause, undoubtedly, in my experience.

Mr. Park: So there are a great many things that might occur in connection with the operation of a train, that the conductor, although generally supposed to be the captain of the train, would not be able to determine definitely, and no determination would be arrived at as to the cause, until that engine was taken into the shop and an examination made of the parts that had failed, in a great many instances?

Mr. Keefe: My experience has been that the conductor usually accepted the engineer's statements, as to the causes of any delay attributable to the performance of his duties.

Mr. Park: If the conductor said to the engineer that he did not believe the engine was disabled in the front end, do you think they would get along very harmoniously the balance of the trip?

Mr. Keefe: I think that is self evident, Mr. Park.

Mr. Burgess: Are you through, Mr. Park?

Mr. Park: Yes.

Mr. Burgess: If this particular engine that was supposed to have a leaky steam pipe in the front end, had the superintendent of motive power and the master mechanic riding on the

engine, and the traveling engineer, could those three dignitaries, coupled with the engineer, positively state that it was a leaky steam pipe in the engine, without opening the front end?

Mr. Keefe: I would ask you to reserve that question for the mechanical superintendent, who will follow me on the stand.

Mr. Burgess: What would happen, speaking now as Assistant General Manager, to one of the engineers on the Gulf, Colorado & Santa Fe, if he left with a tank half full of water, in your judgment?

Mr. Keefe: He would be disciplined.

Mr. Burgess: I think so.

Mr. Keefe: Yes, sir.

Mr. Burgess: So, as a general proposition, speaking of the engineers as a class, they are not given to leaving the terminal with the engine's tank half full of water, are they?

Mr. Keefe: No, sir.

Mr. Burgess: That is only a rare instance?

Mr. Keefe: It is an exceptional case. It does occur, however.

Mr. Burgess: And may be an honest mistake?

Mr. Keefe: Yes, sir.

Mr. Burgess: Or may be carelessness?

Mr. Keefe: It may be from a number of causes.

Mr. Burgess: And would result in an investigation by the proper officer?

Mr. Keefe: It would result in at least an inquiry, anyway.

Mr. Burgess: And discipline imposed in the event it was deemed carelessness on his part?

Mr. Keefe: If a satisfactory reason was not offered for it he would undoubtedly be disciplined.

Mr. Stone: I would like to ask Mr. Keefe one more question in regard to this exhibit before leaving it. Do you show, in any of your exhibits, the average wage per man of the locomotive engineers and firemen, for any month?

Mr. Keefe: Yes.

Mr. Stone: The locomotive engineer and fireman?

Mr. Keefe: Yes.

Mr. Stone: That comparison is made in the same way that you make this average wage per man for the shop man?

Mr. Keefe: Yes.

Mr. Stone: That is all.

Mr. Sheean: That is all. Anything more about this exhibit? If not, we will go to exhibit 24.

(The document so offered and identified was received in evidence and thereupon marked "Railroads' Exhibit No. 24, January 29, 1915.")

RE-DIRECT EXAMINATION.

Mr. Sheean: Mr. Keefe, it was stated here, or suggested in the hearing, that the rates of pay of conductors and brakemen were standardized in the Western territory. Have you caused to be assembled as Exhibit 24, a statement showing what the wages of conductors and brakemen in the various classes of service is, on a number of roads in Western territory?

Mr. Keefe: Yes, sir.

Mr. Sheean: Will you tell us briefly just what number of roads were taken, and why those roads were selected, if there was any particular reason for selecting them?

Mr. Keefe: There were fifteen roads selected for the Western territory, to represent the general conditions. No particular motive prompted the selection of any of the companies shown, excepting to try to give a general review of the entire Western territory?

Mr. Sheean: And particularly to ascertain whether or not it was or was not a fact that the pay of the conductors and brakemen was standardized in this Western territory?

Mr. Keefe: Yes.

Mr. Sheean: Just what is the showing of this exhibit in that respect, and as to the range of wages?

Mr. Keefe: The showing does not reveal any uniformity or standard in the compensation paid to conductors and brakemen, as indicated by these excerpts from their schedules.

Mr. Sheean: These are taken from the schedule provisions of the roads represented on the exhibit?

Mr. Keefe: Yes, sir.

Mr. Sheean: It shows the mileage basis where there is a mileage basis, as well as the monthly rate, where the rate is a monthly rate?

Mr. Keefe: Yes.

Mr. Sheean: Just give us, in a general way, what the

difference is in graded monthly salaries of conductors in passenger service?

Mr. Keefe: It shows, for instance, taking the Santa Fe Lines, Eastern and Western Lines, that they have four rates of pay, running from $171.16 per month to $134.20.

Mr. Sheean: And for brakemen, in passenger service?

Mr. Keefe: From $93.39 down to $74.91.

Mr. Sheean: Can you tell us in a general way why or how, or in what manner, those variations in the monthly wage are brought about?

Mr. Keefe: The first rate, $171.16 is the rate of pay that is allowed certain runs on certain parts of the Santa Fe proper.

Mr. Sheean: That is, the schedule specifically provides the runs on which that monthly rate of pay shall obtain?

Mr. Keefe: Yes.

Mr. Sheean: And then as to these other rates shown, do they also specify the runs in the schedule?

Mr. Keefe: They provide not specified runs, but there is a provision on runs of certain mileage, that they will receive a certain pay, and for other mileage, they will receive another rate of pay.

Mr. Sheean: What is that mileage on which they will receive the one rate, and the other mileage on which they will receive another rate?

Mr. Keefe: On runs of 4,000 miles or over per calendar month, the general rate that they pay is $165.

Mr. Sheean: 4,000 miles or over?

Mr. Keefe: Yes.

Mr. Sheean: The next lower rate of $140.36, is on runs of what mileage?

Mr. Keefe: Less than 4,000 miles per calendar month.

Mr. Sheean: Speaking generally, is that, or some similar basis of division on mileage, somewhere from 4,000 up to 7,500 miles, made the division or basing point in fixing rates on the different roads?

Mr. Keefe: It is my recollection that 7,000 miles is the maximum. I don't recall any 7,500 rate. There may be, but I have not made a minute enough study into it to tell you whether there are any runs of 7,500 miles or not. I know there are of 7,000 miles.

Mr. Sheean: But this higher rate as shown here, is 4,000 miles or over?

Mr. Keefe: Yes, and in that Santa Fe schedule there is a provision that on ordinary passenger runs 6,000 miles will be a maximum month's work, except on certain runs where they have 6,500 and 7,000 miles on limited trains, and where 7,000 miles represent a month's work.

Mr. Sheean: Now, the detail on these different roads as to the spread is arrived at by enumeration of specified runs, or the classifications with wide-spread in mileage?

Mr. Keefe: Yes.

Mr. Sheean: The Southern Pacific seems to have a number of passenger runs running from $115.50 up to $165.

Mr. Keefe: Yes, it is my recollection of their schedule that they provide mostly on a trip basis; that is on a certain basis rather than a uniform schedule.

Mr. Sheean: And so in the passenger brakemen, a similar spread is shown on these different roads?

Mr. Keefe: Yes.

Mr. Sheean: Now, on through or irregular freight, conductors on the Santa Fe seem to have four different rates on the mileage basis, running from $4.18 up to $5.10.

Mr. Keefe: Yes, sir, depending upon the territory in which they operate.

Mr. Sheean: And that is wholly because of the territory in which they operate?

Mr. Keefe: Yes, sir.

Mr. Sheean: $4.18 seems to run quite uniformly as to conductors in through and irregular freight.

Mr. Keefe: There is more of a uniformity in that class than there is in any of the other trainmen's schedules. The Union Pacific seems to have a monthly rate, and to have a $4.1745 rate.

Mr. Sheean: And the Wabash has a daily rate on some runs?

Mr. Keefe: Yes, sir.

Mr. Sheean: Now, there is also some similarity in the rates of brakemen in through and irregular freight?

Mr. Keefe: Yes.

Mr. Sheean: In local freight, conductors' compensation varies widely, doesn't it?

Mr. Keefe: It varies, yes, sir, mostly with every schedule. Mostly every schedule has a different provision for its local freight service. That is true also of its mixed train service.

Mr. Sheean: And also as to brakemen in the local?

Mr. Keefe: Yes, sir.

Mr. Sheean: And what about the work train and snow plow. Is that also—

Mr. Keefe: That is generally left to the local conditions, the provisions of the local schedules in the local territory in which they operate.

Mr. Sheean: And on branch service the provisions are found in some of the schedules whereby the rate of pay is fixed on the branches?

Mr. Keefe: Yes.

Mr. Sheean: Of conductors. Let me see, the first one showing a branch is the Chicago Great Western. The lowest on main line conductors in passenger service seems to be $115, while the branch line service takes $111.32.

Mr. Keefe: That is on certain unclassified branch lines.

Mr. Sheean: Certain unclassified branch lines. But as to the pay on branch lines on the roads which have specified provisions, that is also set forth on this exhibit?

Mr. Keefe: Yes.

Mr. Sheean: Was there anything particularly to which you wanted to direct attention in connection with this exhibit, Mr. Keefe, other than the general picture of what is being paid to conductors and brakemen on the roads here shown?

Mr. Keefe: No, I think the only purpose was to show the lack of uniformity and of standardization as applied to this branch of train service.

Mr. Byram: Mr. Keefe, did you find anything in this exhibit or the schedules from which it is made, that, for instance, in through and irregular freight service pays one rate for a long train and another rate for a short train?

Mr. Keefe: No. I do not recall any provisions in any of the trainmen's schedules that are based upon the length of train or the amount of tonnage.

Mr. Byram: Or the amount of tonnage?

Mr. Keefe: I do not recall. If there is any, it has escaped my scrutiny.

Mr. Byram: Then, according to this, the conductors and brakemen on a train get the same rate of pay whether they have a long train in their charge or a short one?

Mr. Keefe: Yes, sir.

Mr. Byram: Heavy tonnage or light tonnage, in through and irregular freight service?

Mr. Keefe: Yes.

Mr. Byram: Their service is not graded the same as the enginemen?

Mr. Keefe: No. When you speak of a heavy train, of course, I have in mind to mean a train of—

Mr. Byram: What I mean is, the gradation of pay in the engineers and firemen at present, as it exists at present, is somewhat different from the rate of pay for trainmen?

Mr. Keefe: Yes.

Mr. Byram: The trainmen have one rate of pay for that service, regardless of the size of the engine?

Mr. Keefe: The size of the engine or the size of the train.

Mr. Byram: The enginemen have a different rate of pay for the different sizes of engines; in that respect the two schedules differ?

Mr. Keefe: Yes.

Mr. Stone: Mr. Keefe, is it not a fact that this practically shows a standardization of through and irregular freight rates for conductors except on mountain territory?

Mr. Keefe: No, not uniformity. I do not understand that the Southern Pacific Company System shows the same basis of pay that is allowed in other parts of the country, just looking at their schedule provisions.

Mr. Stone: Is it not a fact that that is a much higher rate for the actual miles than it would be on a mileage rate?

Mr. Keefe: I have made no computation to determine whether it is higher or lower: The only point is, I know it is different.

Mr. Stone: But outside of that, the $4.18 rate prevails all the way through, on all these roads, for through and irregular service.

Mr. Keefe: The Union Pacific does not seem to have that

same kind of a rate, neither does the Wabash; the Wabash seems to have—

Mr. Stone: $4.1745 is so close to $4.18 that it is not far away.

Mr. Keefe: Are you referring to the Union Pacific?

Mr. Stone: Yes.

Mr. Keefe: They have a rate of $132.19 also.

Mr. Stone: That is on some established runs, and that is a higher rate, is it not?

Mr. Keefe: I don't know whether it is higher or lower. I did not make any investigation to determine.

Mr. Stone: But wherever a mileage rate is shown it is $4.1745, a difference of .55 of one cent?

Mr. Keefe: Or $5.10, or $4.64, or $4.52, $4.78 or $4.42.

Mr. Stone: But $4.18 is practically the standard rate for the west, is it not?

Mr. Keefe: It is more generally used than any other rate.

Mr. Stone: Is it not a fact in this passenger showing that $165 is practically the standard rate for passenger conductors?

Mr. Keefe: No.

Mr. Stone: Doesn't it show it in almost every one?

Mr. Keefe: But that is not the only rate that they have. There are other variations in rates.

Mr. Stone: But, under certain conditions, in each one of those roads they are paid $165 a month?

Mr. Keefe: We do not understand the Chicago & North Western have any such rate or the Illinois Central have any such rate.

Mr. Stone: Neither one of those roads has the mileage to bring it up to that rate; isn't that the reason?

Mr. Keefe: I don't know what is the reason. I know there is no uniformity. I will leave the schedules of each of these roads with you, if you like.

Mr. Stone: I have them all. Is it not a fact they pay the same rate for passenger conductors on motor cars that they do on one of those heavy steam trains?

Mr. Keefe: I do not believe so, Mr. Stone.

Mr. Stone: In the same territory?

Mr. Keefe: No, my recollection is they provide for another rate for motor cars. I just glanced at one a few minutes

ago that had a special provision to cover its motor cars, where they paid conductors $134.20 and brakemen $74.91.

Mr. Stone: What road is that?

Mr. Keefe: That is the Atchison, Topeka & Santa Fe.

Mr. Stone: A number of the roads do pay the standard rate?

Mr. Keefe: I am not aware that they do, Mr. Stone.

Mr. Stone: But there are not so many variations of rates for the conductors and trainmen as there are for the engineers and firemen in the Western territory, are there?

Mr. Keefe: If your proposal is granted, there will be a considerably greater number of variations, even over what they have at the present time.

Mr. Stone: Do you think so?

Mr. Keefe: Yes, sir.

Mr. Stone: Do you not think the proposal goes a long ways toward standardization—our proposal?

Mr. Keefe: No.

Mr. Stone: Do you think it would create more classes on the Santa Fe than they have now?

Mr. Keefe: I think it will create an entirely different set of compensation than is now being received and different basis, and, in my opinion, will create more of a disstandardization, so far as earnings are concerned, than it would a standardization.

Mr. Stone: Does this Exhibit show on what railroads the conductors and trainmen have the automatic release rule?

Mr. Keefe: No.

Mr. Stone: That is all.

Mr. Sheean: Simply shows what they get a month, or what their wages are.

Mr. Keefe: It shows what their rate of compensation, as shown in the schedule, provides.

Mr. Shea: Mr. Keefe, are the employes in yard service included in this exhibit?

Mr. Keefe: No, this is train service.

Mr. Shea: Do you show the rates of pay for yard men, both day and night, in any exhibit, to see whether there is any uniformity in that class of service?

Mr. Keefe: No, I have not made any exhibit of that kind; made no inquiry; made no investigation.

Mr. Shea: Would you mind furnishing that information, if it is not too much trouble?

Mr. Keefe: I will undertake to compile it, Mr. Shea.

Mr. Shea: Where they show both the day and the night rate.

Mr. Byram: I just want to ask a question. Mr. Keefe, according to this exhibit, the through and irregular freight service on the railroads in question, are nearer to a standard rate of pay, or uniform rate of pay than the other classes of service?

Mr. Keefe: I think I so stated.

Mr. Byram: As you stated a while ago, I think, in connection with another exhibit, it was your opinion that about 60 per cent of the service is included in local and mixed passenger, or what might be called assigned service, leaving, perhaps, 40 per cent to represent the through and irregular portion of the service?

Mr. Keefe: Yes, sir.

Mr. Byram: Then if the through and irregular freight service represents not to exceed 40 per cent, or, as you estimate it, 40 per cent of the service, then it is only 40 per cent of the trainmen's rates that are anywhere near uniform?

Mr. Keefe: That reach any semblance of uniformity, yes.

Mr. Byram: That is, as shown by this exhibit?

Mr. Keefe: Yes.

Mr. Byram: Of that 40 per cent that is not included in assigned service, would there be anything but through and irregular freight service included, do you think—in your estimate of 60 per cent assigned service and 40 per cent other service?

Mr. Keefe: That would include not only through and irregular freight service, but also included the extra men; that was not on classes of service, but any man that I had my estimate based on.

Mr. Stone: This through and irregular freight service covers all the men who are assigned to so-called regular or fast freight runs, does it not?

Mr. Keefe: Yes.

Mr. Stone: Did I understand you correctly that in this

through and irregular service, it would only be 40 per cent of the freight service?

Mr. Keefe: I gave my estimate as to the number of men engaged, not as to the classes of service. I had in mind the extra men, as well as the through or irregular service, and I had not in mind the men that were assigned to regular freight service. It was the chain gang or pool service and the extra men.

Mr. Stone: Adding the fast freight to the assigned gang or pool service, including the extra men, how many men are covered by this through or irregular rate?

Mr. Keefe: Excluding the extra men?

Mr. Stone: No, taking them all. It takes everything, except the local freight men, does it not, and that is a higher rate?

Mr. Keefe: I wish you would repeat your question again. I cannot quite understand what you want.

Mr. Stone: I understood you to say that this through and irregular service only represented 40 per cent of the men that were paid under this basis. If you added to that, the crews that are assigned to fast freight service, what percentage of the men would be covered then?

Mr. Keefe: I corrected Mr. Byram, as I recall it, to the extent that the 40 per cent that I gave him was not of the service itself, but as to the men engaged in the various classes of service, including extra men.

Mr. Stone: Is it not a fact that this through and irregular freight service represented here, covers all the men in service, except the local freight men?

Mr. Keefe: Yes, sir.

Mr. Park: Mr. Keefe, in your examination of the trainmen's schedules, did you find that there were different methods also of paying for overtime?

Mr. Keefe: I did not make a minute examination of these roads, as to their overtime allowance. As a general proposition, it is my understanding that they are paid uniformly on the basis of ten miles per hour.

Mr. Park: Did you find that any of them are paid time and a half?

Mr. Keefe: I know there are none paid time and a half.

Mr. Park: And in the preparatory and terminal time, and

pay for deadheading and attending court, is that uniform, or does it vary in the different schedules, to some extent?

Mr. Keefe: I do not believe there is any uniformity in that. I made no minute examination as to that, but my general knowledge is that those provisions are not standard or uniform.

Mr. Park: They vary in the different localities, by the different roads?

Mr. Keefe: Yes.

Mr. Shea: Mr. Keefe, before we leave this, what is the practice on the Western roads, with regard to rates of pay for conductors and trainmen, as between local and through freight service? That is, do they have a differential in their rates of pay—these local freight men?

Mr. Keefe: Yes, they have a different rate of pay than the through or irregular freight men provide. Their schedule provisions, generally speaking, are based upon the particular territory.

Mr. Shea: Now, how about the per cent? How does the percentage run? How does the percentage compare, taking into consideration the number of miles run?

Mr. Keefe: I have not made any computation of that.

Mr. Shea: Would it be too much work for you to do that work for the Board, to show the rates of pay per day, for local freight men as against the rates paid for conductors and trainmen, and through freight men, together with the actual miles run?

Mr. Keefe: I will undertake that, but I want the Board to understand there will be a little delay in getting that, because I will have to write to each one of these roads, to get their mileage. I have not anything to indicate their mileage, but will have to get the information direct from the railroads. I will undertake to have it compiled.

Mr. Shea: I wish you would get that, if not too much trouble.

Mr. Sheean: On a local train—local or way freight train, Mr. Keefe, what does a conductor or brakeman do at the local stops and stations?

Mr. Keefe: The brakemen do the unloading, manual—physical unloading of the freight, and are supervised by the conductor, a great many times assisted by the conductor in actually unloading the freight at the warehouses or stations.

Mr. Sheean: A way freight train has less than carload shipments, in which the various commodities are unloaded at stations and other commodities put on?

Mr. Keefe: They are what I term a "peddler service."

Mr. Sheean: The brakeman does the loading and unloading of this material, and the conductor supervises the checking of it and getting the receipts for what is taken out of his train and proper billing for what is put on his train?

Mr. Keefe: Yes, sir; that is their general occupation.

Mr. Sheean: While the conductor and trainmen are getting this differential over through service, are thus hustling this freight in and out, what are the engineer and fireman on the local freight doing?

Mr. Keefe: They stay on their engine.

Mr. Sheean: That is all.

Mr. Shea: Now, Mr. Keefe, I recognize that myself, and that was the reason I wanted to find out what the differential was allowed to men, when they are required to do this service; and I understand also, in addition to unloading and loading freight at stations, they have a great deal of switching to do at stations, do they not?

Mr. Keefe: They have whatever work the local is required to do; it includes switching.

Mr. Shea: When the conductor and trainmen are switching cars, what are the engineers and firemen doing at that time?

Mr. Keefe: They are on their engine.

Mr. Shea: Switching cars?

Mr. Keefe: Yes, sir, they are on their engine, switching cars; performing their duties on the locomotive.

Mr. Shea: That is all.

Mr. Burgess: Mr. Keefe, so that we will have the picture before us, won't you describe the usual and ordinary movements of the local freight train, when it gets to a station?

Mr. Keefe: Why, of course, it varies considerably with every local train run. There is no uniform description applicable to a local train, and any description I would give would simply be the description of one particular local that I might have in mind. Whether it would be uniform, covering all the conditions, I am satisfied it would not.

Mr. Nagel: In other words, there is nothing it might not do?

Mr. Keefe: Yes; a local train is required to do all the local work, because that is what it is put on for.

Mr. Park: The crew generally go to the lunch counter, first, don't they?

Mr. Burgess: But, Mr. Keefe, is it not a fact that when the local car is placed before the platform, that the conductor and two brakemen begin the loading or unloading, and the head brakeman and the engineer and fireman go and do the switching, until the crew get through loading or unloading, and then they assist the head man and the engineer and fireman? Is not that a fact? Don't he go up and get cars out and do what switching he can?

Mr. Keefe: The cars have to be placed at the depot to be unloaded, before they are unloaded. That is, where they are not unloading from the main line. Of course, when they are unloading from the main line, as they do in instances, they do not have any switching to do, except to spot their car when they draw up to the station. As I say, to describe what a local train does, I would be here probably quite a length of time.

Mr. Burgess: I did not expect a straight-edged definition. Just one more question, Mr. Keefe. About being at the lunch counter. The engineer and fireman do not go to the lunch counter at every local station, do they?

Mr. Keefe: I have not said that they did so, Mr. Burgess. They take their time to eat there, the same as any other individual does.

Mr. Burgess: Thank you, Mr. Keefe.

Mr. Stone: I would like to ask you one more question on that, if I may, Mr. Keefe. Do I understand you to make the claim here that all engine crews are allowed to eat on the road, and take their time to eat, on these different freight trains?

Mr. Keefe: That is the practice on the railroad I am connected with, and it is my understanding that they do have time to get what they want to eat, generally speaking.

Mr. Stone: Is it not a fact, on a number of roads, that they are not allowed to eat?

Mr. Keefe: I am not aware of any condition of that kind.

Mr. Stone: That is, I mean allowed to eat between ter-

minal; allowed to stop their train to eat? If they eat at all, they carry a lunch?

Mr. Keefe: I do not know of any condition of that kind, where railroads do not permit men an opportunity to eat, between terminals.

Mr. Stone: That is all.

Mr. Sheean: Exhibit 25.

(The document, so offered and identified, was received in evidence and thereupon marked "Railroads' Exhibit No. 25, January 29, 1915.")

Mr. Sheean: Exhibit 25, Mr. Keefe, is simply the blank form of instructions that the Committee of Managers caused to be sent to the several railroads, for the purpose of ascertaining the class of service, the days worked, the hours worked, the miles run and the wages paid in all classes of service, in the month of October, 1913, is it?

Mr. Keefe: Yes, sir.

Mr. Sheean: The front part of the sheet of Exhibit 25, simply shows the form in which you asked that this information be sent in?

Mr. Keefe: Yes, sir.

Mr. Sheean: From the roads severally?

Mr. Keefe: Yes, sir.

Mr. Sheean: Now, I note at the bottom there is printed "Whenever the total wages of any man is less than $50.00 for the month of October, 1913, a notation should be made in 'Remarks' column, explaining briefly the reason, for example: Laid off the 5th; commenced work 25th; Extra man, left service 8th; or similar condition whatever the facts may be in connection with payment of less than $50.00 during the month of October, 1913."

Were those instructions at any time changed, as to what should be shown there?

Mr. Keefe: Yes, they were subsequently changed to give an explanation for every engineer that made less than $100 per month; for every egnineer and motorman that made less than $100 per month; for every fireman in road service and for motorman helpers who made less than $70 per month; for firemen in yard service and hostlers who earned less than $65 per month.

Mr. Sheean: On the back of the sheet is shown in detail,

the instructions which were given. Just why was it desired, or why was the endeavor made to separate the service as between classes of service?

Mr. Keefe: So as to ascertain as nearly conclusively as we could, just what compensation was received for services performed by men engaged in particular classes of service.

Mr. Sheean: And it was ascertained, was it not, that engineers and firemen worked in different classes of service during the month, and that, therefore, it was necessary to give instructions as to how they should be classified?

Mr. Keefe: Yes.

Mr. Sheean: Uniform instruction was given, whereby he would be shown in the service, in which, during the month, he was principally engaged, as determined by his wages? That is, if an engineer made more in through freight service than in passenger service, assuming that he ran in both services during the month, he would be shown as in through freight service?

Mr. Keefe: From which class of service he received the greater compensation.

Mr. Sheean: And so as to one working as both engineer and fireman, during the month. An engineer demoted to firing, or a fireman promoted to engineer would be shown in the class in which, during the month, he received the greatest wages?

Mr. Keefe: Yes, sir, in the class of occupation, as well as the class of service.

Mr. Sheean: Yes, the class of occupation as well as the class of service, and by that I wanted to bring out the fact that if he earned more as fireman than he did as an engineer, he would be classed as a fireman?

Mr. Keefe: Yes, sir.

Mr. Sheean: And then, under the head of fireman, would be assigned in whatever class of service, as fireman, he earned the greatest part of his pay in that month?

Mr. Keefe: Yes, sir.

Mr. Sheean: Then specific instruction were given as to the manner of arriving at the days, that each one should be counted as on the day of the starting, that the total number of days service in October cannot exceed the 31.

Mr. Keefe: Yes.

Mr. Sheean: No matter how many runs a man should make?

Mr. Keefe: Yes.

Mr. Sheean: And, then, specific instructions and specific illustrations were given, to cover each of the classes of service as to which the information was desired?

Mr. Keefe: Yes, to make certain that there was a thorough understanding of the uniformity in which the returns were to be received and tabulated.

Mr. Sheean: Specific instructions were also given, to exclude any payments made to engineers or firemen for other than regular service, such as attending court, or inquests, or anything of that sort, so that that should not be included as a part of his wages?

Mr. Keefe: That is true.

Mr. Sheean: And generally, this statement dividing it into classes of service, should be brought into balance with the actual payroll during that month?

Mr. Keefe: Yes, sir.

Mr. Sheean: Now, have you here the reports of the various railroads, giving the names of all the men for that month, the work they did, and the amount of money they drew?

Mr. Keefe: Yes, they are in the rear of the court room, behind the judge's bench. I will have them placed out here.

Mr. Sheean: Have them placed there during the noon hour, so they will be accessible.

Mr. Keefe: Yes.

Mr. Sheean: Having obtained this information from each of the roads severally, and that information gives, in each case, the name of the engineer or fireman, his occupation, the kind of service, the terminals, the runs, the days and miles, trips, hours and total payments made to him?

Mr. Keefe: Yes, sir.

Mr. Sheean: Covering every employe on all the 98 railroads?

Mr. Keefe: Yes, sir.

Mr. Sheean: Who was employed, I mean, as engineer or fireman in that month?

Mr. Keefe: Engineer or fireman, motorman, helpers or hostlers.

Mr. Sheean: Having obtained from the roads, severally, this complete information, did you then assemble that information for all the roads?

Mr. Keefe: Yes, sir.

Mr. Sheean: That was assembled under your supervision?

Mr. Keefe: Yes, sir.

Mr. Sheean: And as thus assembled, does it contain the names of all the engineers, shown as engineers?

Mr. Keefe: Yes, sir.

Mr. Sheean: And the engineers and their runs, the class of service, payments made and earnings made?

Mr. Keefe: Yes.

Mr. Sheean: Has been separated as to the engineers?

Mr. Keefe: Yes.

Mr. Sheean: As a separate exhibit?

Mr. Keefe: Yes.

Mr. Sheean: Exhibit 26?

Mr. Keefe: For the engineers, shows for all the engineers for that month.

Mr. Sheean: Will you bring us 26?

(The document, so offered and identified, was received in evidence and thereupon marked "Railroads' Exhibit No. 26, January 29, 1915.")

Mr. Sheean: While those are being distributed, Mr. Keefe, do I understand that under these instructions, wherever an engineer, as shown by the payroll, earned more than $100 per month, he was treated as having been available for duty the entire month?

Mr. Keefe: He is shown in here for all his earnings, whether he worked one day, or regardless of the length of time he worked.

Mr. Sheean: That is, you made no inquiry, wherever the engineer earned as much as $100 in the month, as to whether he laid off, whether he earned that $100 in ten days or fifteen days, or whether he was laying off or not?

Mr. Keefe: No.

Mr. Sheean: But it was only in the case of where the engineer's earnings were below $100 and the fireman's below—

Mr. Keefe: $70; fireman's in road service, $70.

Mr. Sheean: That you made any inquiries to ascertain whether he had or had not laid off during the month?

Mr. Keefe: That is right.

Mr. Sheean: After obtaining all this information as to all the men in Exhibit 26, you have shown it in the different classes of service?

Mr. Keefe: Yes, sir; in the first class of service shown under Section No. 1, is engineers working entirely in passenger service. That is, the wages of all engineers who were entirely in passenger service. Commencing with Sheet No. 3, it shows by railroads, by each division of the railroad, the individual engineer, the class of service, between what terminals he operated, the number of days, the number of trips, the miles and the hours, and the average hours per day, and average hours per trip and the total wages that he received, in October.

Mr. Sheean: So that the actual earnings of the individual men during that month, appears in each instance, on each division of each of the railroads involved?

Mr. Keefe: Yes, sir.

Mr. Sheean: Will you explain, please, the column remarks, or, I think possibly you have explained that under the instructions they were to put in the column of remarks, wherever an engineer earned less than $100 and wherever a fireman earned less than $70, to ascertain whether or not he was available during the month, and if so, what part of the month.

Mr. Keefe: Yes, sir.

Mr. Sheean: Now, on these various runs of engineers working entirely in passenger service, that shows largely the passenger runs that are fixed and regular runs.

Mr. Keefe: Yes, sir, practically. Shows all of the assignments in passenger service. It shows every man that performed any service in passenger service exclusively in that month.

Mr. Sheean: Starting right on page 3, just so that we may get the general routine of it, and taking the first man, the Atchison, Topeka & Santa Fe, J. Bohner, an engineer in passenger service, running between Shopton and Argentine, worked twenty days, made twenty trips, total number of miles 4,360. That shows the distance between those terminals is what?

Mr. Keefe: The actual distance between the terminals, showing the miles that he actually made.

Mr. Sheean: In that particular case would be 1-20 of the 4,360, that is 218 miles.

Mr. Keefe: Yes.

Mr. Sheean: He ran this 218 miles a day in twenty days, in the month, and for that received $202.84?

Mr. Keefe: Yes, sir.

Mr. Sheean: "Attending court at Carrollton."

Mr. Keefe: That is where he was paid on the payroll. He lost one day and was paid one day's time.

Mr. Sheean: Now, there is no inquiry made as to whether he laid off of his own accord the other nine days, because inquiry was only made where an engineer was down to $100, or below that?

Mr. Keefe: Yes, sir.

Mr. Sheean: Taking the next man, Mr. Cooper, he has the same run?

Mr. Keefe: Yes, sir.

Mr. Sheean: Shopton to Argentine. He ran on 22 days in that month?

Mr. Keefe: Yes, sir.

Mr. Sheean: And received $223.21 for it?

Mr. Keefe: Yes, sir.

Mr. Sheean: Clancy has the same run?

Mr. Keefe: Yes, sixteen days.

Mr. Sheean: Sixteen days, and running that in sixteen days, he received $164.00, and he was off eleven days?

Mr. Keefe: Yes, sir.

Mr. Sheean: For which under the schedule he was paid $55.55?

Mr. Keefe: Yes, sir.

Mr. Sheean: That, apparently, Mr. Keefe, is one of the situations we spoke of this morning where a daily run is manned by three crews, splitting it up into twenty days apiece in the month.

Mr. Keefe: There are a considerable number of engine crews running between Shopton and Argentine, Mr. Sheean, if you will notice. I don't know just how many they have there. Apparently they work about twenty days in the month.

Mr. Sheean: But working twenty days in the month, run-

ning 218 miles in passenger run, what time is that run made in, five hours?

Mr. Keefe: It shows here an average of 8.3, from 7 to 8 hours per trip.

Mr. Sheean: Oh, yes, 7 to 8 hours per trip, 8.1, the first man is. Well, working on the run 8.1 hours per trip for twenty days in the month, there is $202.84 paid by that run to the engineer.

Mr. Keefe: That is what that engineer drew.

Mr. Sheean: And so through the service, the name of the man and the runs, and the hours, and the average time on the trip is shown as to all of the railroads in passenger service. This first part indicated is men who worked entirely in passenger service during the month?

Mr. Keefe: Yes.

Mr. Sheean: Now, before passing that, Mr. Keefe, and I am only passing them to get the general explanation of it at this time, and you can come back to the detail. If you think it is essential that I should call attention to anything more about the way this particular part is segregated—

Mr. Keefe: No. You have given a general bird's eye view as to the manner in which it was prepared. There are a number of sheets that should be examined in here to see what—

Mr. Sheean: Well, I wanted first, if I might, with your approval, to run through the way in which the others were divided.

Mr. Keefe: Yes, sir.

Mr. Sheean: The engineers working entirely in suburban service are divided in the same way. That is the second section of this book, and begins at sheet No. 65, as shown by your index.

Mr. Keefe: Yes, sir.

Mr. Sheean: The index shown on page 1 gives the section number at which the various classifications appear, as well as the sheet number?

Mr. Keefe: Yes, sheet No. 1 gives the index for each class of service.

Mr. Sheean: Sheet No. 1 is an index as to where everything may be found. And those divisions into the classes of service are the various classifications that you found it necessary to provide in the form, in order to cover all of the men.

Mr. Keefe: Yes, sir.

Mr. Sheean: And coming down to the last one on the extreme, "Engineers working part of the month as Firemen, Hostlers or Motormen, wages as Engineer being greater than wages as Fireman, Hostler or Motorman and the greatest portion of wages as Engineer being derived from Pusher, Helper, Construction Work, Gravel, Wreck, Belt Line, Transfer and Other Unclassified Service," completes the volume as to Engines?

Mr. Keefe: Yes, sir.

Mr. Sheean: Then you have another volume, taking the firemen in the same manner, and making the same classification in accordance with these instructions.

Mr. Keefe: Yes, sir.

Mr. Sheean: In this book there is shown only the employes in engine service the greater part of whose wages accrued as engineers.

Mr. Keefe: The greater part or all.

Mr. Sheean: Yes, the greater part or all. Now, Mr. Keefe, will you call attention to some of the features shown on these different classes of service?

Mr. Keefe: The sheets are all compiled in the order in which they were received from the railroads, without any attempt made to separate or segregate the high earnings from the low earnings, but taken as they were compiled by division officers. No attempt made whatever to classify them into any group of earnings. More generally they have tried to put it alphabetically by the name of the employe rather than any other classification, but they have not used that always. But on sheet No. 3, the first sheet, I noticed yesterday or last evening this one item of one man who was pensioned on the 8th of October, Mr. C. B. Baker, on the Southern Kansas Division. A glance at the total column will show a considerable number, if not the greater percentage of the men, earning over $200 per month. This is more true of sheet No. 4, which shows a greater.

Mr. Sheean: Now, Mr. Keefe, I think perhaps it would be well to go back just a minute. After this information was sent in by the roads severally, and the detail sheets of the different roads being here available and accessible, you then caused to be taken off of those sheets by typewriters the names and

showing of the several sheets and assemble them for the system as a whole, causing them to be photostated in this form?

Mr. Keefe: Yes.

Mr. Sheean: As to this exhibit, or the original sheets from which this was photostated, was the work done under your supervision?

Mr. Keefe: Yes, sir.

Mr. Sheean: From the original reports which are here on file?

Mr. Keefe: Yes. We took, for instance, and brought together under one report, all the engineers in each one of these classes of service. In other words, all of the engineers working entirely in passenger service were brought together for all of the railroads shown in this section No. 1, so that the situation, as an entirety, for all of the rail lines, could be seen at a glance, and that plan has been carried through with each one of the sections.

Mr. Sheean: And in the section from the Trans-Continental Lines down to and—well, a line like the Louisiana & Arkansas described here the other day, is shown on this first part, all of the engineers who worked exclusively in passenger service in that month?

Mr. Keefe: Yes, sir. The sheet which has a tab on it at the commencement of each section, gives the sheet number or page number for each individual railroad, so that if it is desired to examine any particular railroad, it can be readily ascertained on what sheet it starts.

Mr. Sheean: Now, you say page 4 shows, in a general way, the earnings of most of them above $200.

Mr. Keefe: Yes.

Mr. Sheean: Now, taking that page 4, in order to make clear my understanding of this, Mr. N. L. Avery on the Atchison, Topeka & Santa Fe, an engineer between Chicago and Shopton, "Days 10, Trips 10, Miles 2,360, Hours 57, Average Hours per Day 5.7, Average Hours per Trip 5.7," he was paid $104.94.

Mr. Keefe: Yes, sir.

Mr. Sheean: Working ten days, but because of his total pay being $104.94, therefore above $100, you made no inquiry as to why Mr. Avery worked only ten days that month?

Mr. Keefe: No, made none whatever. He is considered as—

Mr. Sheean: And in any average that you make hereafter, you are treating Mr. Avery as being a man available for duty the entire thirty days.

Mr. Keefe: Yes, and counts the same as the man next to him, who worked twenty-one days for $217.89. In other words, he has, in our averages which will hereafter be introduced, the same standing and rating as the man immediately next to him, who drew $217.89.

Mr. Sheean: That is, a man making that run between Chicago and Shopton under the present schedule of the Santa Fe, which I think was referred to as being one of the very low schedules here, if he ran thirty days in the month, 5.7 hours a day, he would earn $313.82, or 92 cents?

Mr. Keefe: Approximately that, if he worked the other twenty days the same as he did for the first ten days.

Mr. Sheean: In passenger service?

Mr. Keefe: Yes; but there are no such calculations that enter into any of these figures. They are the actual figures.

Mr. Sheean: No, I understand that, Mr. Keefe, but I think the Santa Fe was referred to as one of the roads having a very low schedule of pay here, and I wanted to call attention to what is possible under this low standard or low scale of wages of runs on the Santa Fe. Now, passing these pages—

Mr. Shea: Before you pass that, Mr. Sheean.

Mr. Sheean: Yes.

Mr. Shea: Mr. Keefe, take those extra passenger men, did they perform any other service?

Mr. Keefe: No, that is all that they earned during that month. That is all that they sought to earn, at least. It is what they actually drew in October.

Mr. Shea: They were ready to perform additional service if called upon?

Mr. Keefe: I don't know as to that particular feature.

Mr. Byram: Does your exhibit show whether they worked in any other service?

Mr. Keefe: Yes, it would show whether they worked in any other service.

Mr. Byram: But it does not show that these men did?

Mr. Keefe: No, sir; this takes all the earnings they made in any class of service, and being in passenger service they did not perform any other class of service.

Mr. Burgess: I understood you to say, Mr. Keefe, that where the earnings were less than $100 per month, and the engineer lays off on his own accord, that you did show it?

Mr. Keefe: Yes, it will show where he laid off of his own accord.

Mr. Sheean: As to those three men to which Mr. Shea has directed attention here, those men worked entirely in passenger service, and all they earned during that month, was the amounts shown there of $83.07, $77.79, and $71.49.

Mr. Burgess: And there is no notation shown there—

Mr. Sheean: That they laid off at all, no, sir.

Mr. Burgess: So it is fair to assume that they were ready for duty in that case?

Mr. Sheean: At least, the road could not furnish us with any statement that they did lay off, and that assumption, I think, is fair as to those men, Mr. Burgess.

Mr. Burgess: My attention was directed to it, Mr. Sheean, by the fact that in other places you do show leave of absence.

Mr. Sheean: Yes, and I think the deduction you make is a fair one, that where the road shows in the other case that the men laid off, that in this particular case as to these extra men on passenger runs, that they did not lay off.

Mr. Park: There is nothing to show that they could not have returned to other service if they had so chosen, is there? That is, they stayed in that service, apparently.

Mr. Sheean: There, apparently, I think, Mr. Park, is a board there, in which they have a special extra passenger board protecting passenger service, and I think it is fair, as Mr. Burgess stated, to assume that as to those three particular men, that all that was available on that extra board for those men, were those earnings of $77 and $83.

Mr. Burgess: That assumption, Mr. Sheean, would harmonize with the notations made all along the exhibit?

Mr. Sheean: Exactly, where the same road, making the other explanation, where they have a record of leave of absence here, and simply showing that here—

Mr. Burgess: Yes.

Mr. Sheean: I think from that that it is a fair assumption that the extra board protecting that service, only afforded that amount of pay to those men.

Mr. Keefe, is there anything more on that?

Mr. Keefe: On that sheet No. 4, the last three names at the bottom. I just want to call particular attention to the point that there were a certain number of men on the Colorado division that performed service on another railroad, the Colorado Southern, and they received compensation from that road also. It is shown in a note here as to the compensation that was received on the other railroad, so as to give an idea as to what their total earnings were.

Mr. Shea: What character of service was that?

Mr. Sheean: At the bottom of the page there.

Mr. Shea: No, I mean what character of service was it?

Mr. Keefe: It is a joint passenger run over the Santa Fe and Colorado Southern, between Denver and Trinidad, and that territory.

Mr. Shea: Those men are on the payrolls of two different companies?

Mr. Keefe: Yes, sir. They are carried on the payroll of the Santa Fe for the mileage and time that they earned on the Santa Fe, and on the Colorado Southern, for the mileage and time that they earned on the Colorado Southern.

Mr. Shea: Are we to assume by that, that they have seniority on both of these roads?

Mr. Keefe: I don't know as to where they had their seniority, I did not make any inquiry as to that feature. I know that they drew earnings on both of the railroads.

Mr. Shea: That is over a joint track, is it not? They only really held seniority, however, on one road, did they not?

Mr. Keefe: I don't know personally, Mr. Shea, whether they held seniority on both roads or not. My assumption is that the men known as Santa Fe men, held seniority on the Santa Fe only; and that the men known as Colorado Southern men, held seniority on the Colorado Southern. When you come to the Colorado Southern, you will find there that we have shown what the men have earned on the Santa Fe likewise, as we have shown it here.

Mr. Sheean: Two roads reported the same names and

showed the earnings on their payrolls, and in order to bring them together here this notation was made?

Mr. Keefe: Yes, sir.

Mr. Sheean: Anything particular on the next page, Mr. Keefe?

Mr. Keefe: No.

Mr. Sheean: You have made some notes there as to different things.

Mr. Keefe: Sheet No. 5 is still a continuation of the high earnings, or the large earnings made by men on this class of service. The same is true of Sheet No. 6 and also Sheet 7. On Sheet No. 8 they go higher than $200. There are cases there of $331.10 and $308.45.

Mr. Sheean: Where are those?

Mr. Keefe: Those are on the Canadian Northern Railroad.

Mr. Sheean: At the top?

Mr. Keefe: Their names appear down there just above the Canadian Pacific Lines, about in the middle of the page, $331.10, and $308.45.

Mr. Sheean: Oh, yes, I see, $331.10, Saskatoon to Prince Albert.

Mr. Keefe: Yes.

Mr. Sheean: That man worked 31 days in that month?

Mr. Keefe: Yes, sir, an average of twelve hours per day.

Mr. Sheean: That is a turn-around run, apparently?

Mr. Keefe: Yes, sir.

Mr. Sheean: 62 trips. Six hours each way, works twelve hours a day?

Mr. Keefe: Yes, sir.

Mr. Sheean: $331.10.

Mr. Keefe: Yes, sir.

On the next sheet there is no special mention on it, except a continuation of the same earnings; and Sheet No. 10 shows some additional employes receiving more than $300.

Mr. Sheean: That is the Canadian Pacific?

Mr. Keefe: Yes, sir. In that section—

Mr. Sheean: Let us see, that is a turn-around, that $305.00, shown on page 10. Twenty-seven days and 54 trips, Coronation to LaCombe?

Mr. Keefe: Yes, sir.

Mr. Sheean: That is a fourteen hour spread?

Mr. Keefe: Yes, sir.

Mr. Sheean: On Sheet No. 30 of that same exhibit, there is another $304.00 man in passenger service on the Milwaukee Railroad, Green River Division, down at the bottom of the page.

Mr. Sheean: Page 30?

Mr. Keefe: Yes.

Mr. Sheean: That is the Denver & Rio Grande?

Mr. Keefe: Oh, yes, the Denver & Rio Grande, Green River Division.

Mr. Sheean: I thought you said Milwaukee.

Mr. Keefe: Well, the Milwaukee is the first one on the page there, and I did not see the Denver & Rio Grande.

Mr. Sheean: $304.98?

Mr. Keefe: Yes.

Mr. Sheean: That man only worked twenty-three days, according to this?

Mr. Keefe: Yes, in the Helper to Grand Junction Run, passenger service. Engineer in passenger service from Helper to Grand Junction.

Mr. Sheean: The time per day on those twenty-three days was 9.1 hours?

Mr. Keefe: Yes, sir. Now, Sheet No. 42, shows the wages of the man that made the most money in passenger service in that month, $341 for thirty days' service between Greenville and Mineola, on the Missouri, Kansas & Texas Railway of Texas, working an average of 13.2 hours per day. He is in turn-around service.

Mr. Sheean: He has a thirty mile run there that makes two turn-arounds evidently, thirty miles, and he does that four times a day up and back, and up and back again?

Mr. Keefe: Yes, sir.

Mr. Byram: Do the hours on duty include the lay-over at the turn-around point?

Mr. Keefe: It includes all the hours for which he is compensated, and I understand he is paid continuous time. I don't know, but I understand that he gets paid from the commencement to the end of the last trip. He is in turn-around service.

Mr. Byram: That would include any lay-over there might be at the turn-around point?

Mr. Keefe: Yes.

Mr. Sheean: He makes 200 miles apparently, Mr. Byram, all told; 6,000 miles in thirty days. That is, 6,000 miles is shown as being run there during the thirty days.

Mr. Byram: The reason I asked that question was, I notice a number of these runs here in passenger service, where the time seems to run up as high as ten or eleven hours a day.

Mr. Keefe: Whatever hours they were compensated for are shown in here as the hours on duty, whether it includes the time at turn-around point or not.

Mr. Sheean: Wherever, under the schedule, they were entitled to this amount of time, irrespective of the miles they might run, the time is shown here as the total time for which compensated?

Mr. Keefe: Yes, sir.

Mr. Burgess: May I ask a question there, Mr. Sheean?

Mr. Sheean: I was wrong on that thirty miles, if you are going back to that. That is thirty days.

Mr. Burgess: As I read this, Mr. Keefe, this particular engineer ran 6,000 miles in the month, and averaged 13½ hours per day, is that right?

Mr. Keefe: No, 13.2 hours per day, for all of the time for which he was compensated.

Mr. Burgess: 13.2 hours per day?

Mr. Keefe: Yes.

Mr. Burgess: Therefore, that would seem to account for the $341.60; presumably some of that time is overtime, is it not?

Mr. Keefe: That is his total compensation. As to whether it is overtime or not I don't know. It is his total compensation. You see, he made 200 miles per day.

Mr. Byram: What page is that?

Mr. Sheean: Page 42, the third item.

The Chairman: Wasn't there anything in the record from which you took this, to indicate as to whether any of it was overtime?

Mr. Keefe: This shows what the record shows, that he has received $341.60. I could make inquiry to see if any of that was overtime or not; but he made 200 miles in each of these days,

and he was 13.2 hours doing it in passenger service, whether he received overtime or not, I am not sure.

Mr. Sheean: On 200 miles a day, unless the M. K. & T. has rather a peculiar schedule about the payment of overtime—

Mr. Keefe: Well, this is passenger service.

Mr. Sheean: In passenger service? Well, there might be overtime on some particular days. I wish, Mr. Keefe, you would get the detail of just what that run is there, that Katy run between Greenville and Mineola.

Mr. Keefe: All right, I will do that.

Mr. Burgess: Mr. Keefe, you are not in a position either, to state the entire spread of the day's work, are you?

Mr. Keefe: No, I will get that for you?

Mr. Burgess: Thank you.

Mr. Keefe: I will get the full detail.

Mr. Burgess: It might possibly be that the spread was much greater than the 13.2 hours? It might or might not be?

Mr. Keefe: It might or might not be. I will ascertain the actual facts for you.

Mr. Burgess: Thank you.

Mr. Sheean: On this section 1 of exhibit 3, Mr. Keefe, is there anything more to which you wish to direct attention?

Mr. Keefe: No, a perusal of each one of the sheets indicates the actual earnings that these men are receiving in this particular class of service, as well as their hours on duty and their mileage made.

Mr. Sheean: The distance run?

Mr. Keefe: Yes, sir.

Mr. Sheean: The detail as to just what the time card of these different trains shows, and how they run, you did not attempt to go into that detail here, but, that can be ascertained as to any of these runs, or the amounts earned as to just what was done in connection with that on these assigned runs?

Mr. Keefe: Yes, sir

Mr. Sheean: That is easily ascertained, as to the time of arrival and departure, and so forth?

Mr. Keefe: Yes, sir.

Mr. Sheean: Was there anything further, Mr. Keefe, as to section 1, showing engineers working entirely in passenger service?

Mr. Keefe: No, sir, not right at this time.

Mr. Sheean: The second section begins at page 65, engineers working entirely in suburban passenger service?

Mr. Keefe: Of course, I want it understood that I have not attempted to call attention to all of the earnings, the high earnings, or all of the earnings over $300, because there are a number of additional ones. I just simply, as I came to them, called attention to them.

Section No. 2 is the engineers working entirely in suburban passenger service, and shows the earnings of the suburban men, that is the men engaged in suburban service entirely.

Mr. Shea: What sheet is that?

Mr. Keefe: Sheet 66.

Mr. Sheean: The index on sheet 65, Mr. Keefe, shows the roads which have suburban service?

Mr. Keefe: It shows the roads which have what they considered in October, 1913, as suburban service, according to their then classification, as to what they considered was suburban service.

Mr. Sheean: But as to all the roads which have suburban service, the average is shown on the pages following from 65 to 69?

Mr. Keefe: Yes. Sheet 68 shows, under the head of the St. Louis & San Francisco Railroad, Eastern Division, the name of the engineer who earned the highest wages in that service, in the month of October, which was $239.10.

Mr. Shea: In suburban service, Mr. Keefe, does that also show the spread?

Mr. Keefe: No, it shows the number of hours for which they were compensated.

The Chairman: Mr. Sheean, will you kindly suspend. We will take a recess until 2:30.

(Whereupon, at 12:30 o'clock P. M., a recess was taken until 2:30 o'clock P. M.)

After Recess.

J. H. KEEFE was recalled for further examination and, having been previously sworn, testified as follows:

Mr. Sheean: Mr. Keefe, I want to run through hurriedly

this Exhibit 26, just in each of the classes of service, without attempting to go into any great detail. I think we have passed the exclusively suburban service.

Mr. Keefe: Yes, sir, we were on Section No. 3, one covering engineers working partly in passenger service and partly in freight service, the greater part of the wages being derived from passenger service.

Mr. Sheean: From page 70 on to page 100, the names of the engineers on the different roads and their earnings are shown.

Mr. Keefe: Yes, sir.

Mr. Sheean: Who fall within this classification?

Mr. Keefe: Yes, sir.

Mr. Sheean: Well, just give us a general statement, Mr. Keefe, about the high men—

Mr. Keefe: Well, on page 74, appears the fifth name from the bottom, Mr. W. R. Taylor, shown on the Manitoba Division of the Canadian Pacific, shown as drawing $312.31 in freight and passenger service in the month of October.

Mr. Sheean: Where is that?

Mr. Keefe: The fifth name from the bottom—fifth amount from the bottom of the page.

Mr. Sheean: Oh, yes, passenger service, drew $202.83, and freight service, the same month $109.48.

Mr. Keefe: Yes, sir.

Mr. Sheean: And on the preceding pages and on this page, various amounts, $200.00, $225.00 and $227.00.

Mr. Keefe: $282.00, and all sums, ranging from that on down.

Mr. Sheean: Here is another one that just got under the wire, on your instructions, of $100.81, I notice, Mr. W. McPherson.

Mr. Keefe: Yes, worked fourteen days.

Mr. Sheean: But no inquiry was made as to whether he was laying off or why laying off, because of his being just above the $100 as to which inquiries were made?

Mr. Keefe: That is correct. On the next page is another man making $296.94, the second name from the top.

Mr. Byram: What page is that?

Mr. Keefe: 75.

Mr. Sheean: That also is on the Canadian Pacific?

Mr. Keefe: Yes, sir. There is no particular comment on any of them. The pages speak for themselves, as to the amount of money drawn by each of the men in each class of the service. It is not an uncommon thing to find a large number of them drawing over $200, on each page.

Mr. Sheean: And some of the service being quite varied, passenger, through freight, work, way freight, breaking in an engine and yard work. I notice on page 79, on one Mr. J. S. Pryor, on the Burlington, the greater part of his work being passenger, although passenger was only eight days, that that was the largest single item to any class of service, and, therefore, put under this classification, the greater portion of his wages being drawn in passenger service.

Mr. Keefe: Yes, sir.

Mr. Sheean: Now, anything, particularly, Mr. Keefe, on this classification to which you wish to direct attention?

Mr. Keefe: No, nothing particular.

Mr. Sheean: Then the next effort to classify appears at page 101, engineers working part of the month as firemen, hostlers or motormen, wages as engineer being greater than wages as fireman, hostler or motorman.

Mr. Keefe: Yes, sir.

Mr. Sheean: And the greater portion of wages as engineer, being derived from passenger service?

Mr. Keefe: Yes, sir.

The Chairman: Which page is that?

Mr. Sheean: Page 101. On page 100, the index for the particular railroads.

Mr. Keefe: Yes, sir.

Mr. Sheean: As to this item, is shown.

Mr. Keefe: On this page, 101, appears the fifth name from the bottom, Mr. H. A. McFarland, on Indian Territory division of the Rock Island as drawing $228.34, as engineer and motorman.

The Chairman: How long did he work?

Mr. Keefe: He worked at total of 183 hours, both classes of service. He worked fourteen days, made fourteen trips, 2,021 miles, 93 hours, an average of six hours per day, and drew $116.00.

Mr. Sheean: 6.6 hours per day.

Mr. Keefe: Yes, 6.6 hours per day, or $116.34, and he was a motorman, working thirteen days, made 2,000 miles, 90 hours, 6.9 hours per day, and drew $112.00.

Mr. Sheean: That is shown on 101, Judge.

Mr. Keefe: Fifth name from the bottom, made $228.34 total.

Mr. Park: This first name on page 101, $199.27, five hours a day, 5.9 hours a day. Is that all as a fireman?

Mr. Keefe: He was a fireman in passenger service between Winslow and Seligman, yes, sir, for ten days and ten trips, 5.9 hours per day, and per trip, and made $48.02. Balance for the 17 days of the month he was in freight service as engineer and as engineer in passenger, freight and local.

Mr. Sheean: Engineer as passenger 9 days.

Mr. Keefe: He was engineer in passenger service for 9 days, and made $85.37, an average of 6.2 hours per day. He was engineer in freight service for 4 days, an average of 7.5 hours per day, and drew $29.28. He was an engineer in local service for 5 days, an average of 12.2 hours per day, and drew $36.60, or a total of $199.27 for the 28 days work.

Mr. Sheean: He is put in this classification because the largest single item, $85.37, was as an engineer in passenger service?

Mr. Keefe: Yes, he was both an engineer and a fireman, and would come under this classification. The greater part of his time he was an engineer in passenger service.

The Chairman: It is intended by this to show what this particular individual did in this particular service?

Mr. Keefe: Yes.

The Chairman: Not to show that that class of individual received that on the average?

Mr. Keefe: No, that that particular individual received that in that class of service, and showing for each man what they drew for their work during that month of October.

Mr. Park: It also shows to me that he is not confined to one particular class of service. He was in four different classes, passenger, freight, local as engineer and passenger as fireman.

Mr. Keefe: Yes.

Mr. Sheean: And in this volume is shown all of the men

and all of the earnings of the individuals on all the railroads, the whole or greater part of whose earnings were made as engineers in the month of October, 1913?

Mr. Keefe: Yes.

Mr. Sheean: Showing the low as well as the high men throughout?

Mr. Keefe: Showing the earnings of every man who worked as an engineer the greater part of his time or all of his time.

Mr. Sheean: Now, Section No. 5, or Sheet 102, shows the engineers working entirely in through or irregular freight service?

Mr. Keefe: Yes.

Mr. Sheean: And from Sheet 102 down to Sheet 142 is shown all of the men who did not work in any other class of service than through or irregular freight service during October?

Mr. Keefe: That is correct. It shows the number of men in that class of service drawing over $200 per month, on Sheet 103—that first sheet, reading up from the bottom, was $160.90, $15.23 (laid off 3rd his own accord), $171, $185, $224, $240, $205, $219, $167, $163, $228, $193, $218, $135, $165, $192, $189 and $172.

Mr. Sheean: And in the first column it shows the number of days that the men worked?

Mr. Keefe: Yes, sir.

Mr. Sheean: What you read were on the Atchison, Topeka & Santa Fe, Western Lines, at the bottom of the page?

Mr. Keefe: Yes.

Mr. Sheean: And so on the next page, various amounts, $239, $266, $261, $259, $258, $256, and running down to wherever it was below $100, inquiry being made, but wherever it was as high as $100, no inquiry being made, as to lay-offs?

Mr. Keefe: That is correct.

The Chairman: Upon what basis was the $228 man paid?

Mr. Keefe: The $228 man?

Mr. Sheean: What part of the page, near the bottom?

The Chairman: Yes, near the bottom.

Mr. Byram: O. A. Willett.

The Chairman: Yes, the eleventh line from the bottom.

Mr. Keefe: Page 104?

The Chairman: Yes; upon what basis was he paid in order to be able to draw that amount of money? What kind of service was he in?

Mr. Park: That is page 103, not 104.

Mr. Keefe: He was in through freight service, between Wellington and Waynoka. He is on the same territory as Mr. Jackson, who was an engineer on that same division, and who testified in regard to the Mallet engines. Mr. Jackson's name appears the second above him, C. Jackson.

The Chairman: What kind of an engine was he running?

Mr. Keefe: A Mallet engine; Mr. Jackson was running a Mallet engine.

The Chairman: Did he draw this high rate on account of the size of the engine and the amount of tonnage he was pulling?

Mr. Keefe: He drew this money because of the mileage he made. He worked 24 days and made 3,686 miles in that time. He was an average of 11.4 hours per day for the 24 days.

The Chairman: How much of that was overtime?

Mr. Keefe: I don't know how much was overtime, but I doubt whether there was any overtime, because all of his trips were paid in miles, that is, considered as a whole. There might be an occasional trip or two where he did receive overtime. I would be very glad to make inquiry as to that particular case.

The Chairman: No, that is not necessary.

Mr. Keefe: I have not separated overtime from the straight time.

Mr. Park: His average was 8.3 hours per day?

Mr. Keefe: Per trip. 8.3 hours per trip.

The Chairman: What I would like to know is as to why there is such a discrepancy here between the amounts paid these different men; upon what theory it is based.

Mr. Sheean: Because of the schedule provisions. None of them are on a monthly salary. They are paid under the schedules upon the number of miles they run, except in the cases where, because of the minimum hourly guarantee, they may be paid a guarantee where it runs into hours.

The Chairman: The pay then depends largely upon the number of miles run?

Mr. Sheean: Yes, it depends upon the number of miles

run, and the class of engine which they operate, the engines having different classifications and different rates as shown in the classifications in the different schedules.

Mr. Burgess: In that same territory, in the same class of service, we have Mr. Hendren, earning $135.47 against Mr. Willett, earning $228.53.

Mr. Sheean: Mr. Hendren worked fifteen days.

Mr. Keefe: He only worked fifteen days; one of them worked fifteen days and the other worked twenty-four days.

Mr. Burgess: Why didn't he work more?

Mr. Keefe: Presumably because he didn't care to avail himself of the opportunity to earn more.

Mr. Burgess: But it does not set that forth here, that he laid off?

Mr. Keefe: No, sir, because he had earned more than $100. We made no inquiry as to men that earned more than $100.

Mr. Burgess: But this morning, counsel agreed that where they did not specify that he laid off, it was fair to assume that he was ready for duty.

Mr. Keefe: When his salary was less than $100, only.

Mr. Burgess: I didn't know that he confined it to that.

Mr. Sheean: Yes, because I stated that we made no inquiry, and I attempted to make clear that wherever there was $100 earned, they made no inquiry as to why no more money was made than that; but wherever it was below $100, believing, as we did, that any man who earned less than $100 probably laid off of his own accord, we sent out the inquiries only where it was below $100.

Mr. Burgess: But there is no indication on the sheet to show that he was not ready for duty?

Mr. Sheean: No, we made no inquiry in that case, but we will be glad to do that and ascertain as to just why Mr. Hendren—well, just make a note of that, Mr. Keefe, and find out why Mr. Hendren worked only fifteen days in that month.

Mr. Burgess: I think it is Hendren.

Mr. Sheean: Yes.

Mr. Burgess: Hendren was on the run from Wellington to Waynoka, and there is nearly $100 difference in the same service between the same points.

Mr. Sheean: Yes, and I have no doubt he was either ill or

laid off, because of the position in that same pool; some men worked twenty-eight days, others twenty-five and others twenty-four, apparently in the same pool, and under any order of running first in, first out, Mr. Hendren was probably either sick or laid off.

Mr. Stone: Probably he was resting up from the month before.

Mr. Sheean: That is conceivable.

The Chairman: Assuming that the new rate as proposed had been in effect at that time, would he have drawn more money than he did draw?

Mr. Sheean: Unquestionably. I think that the Santa Fe, under the estimate made of these schedules, was about 51.2 per cent—or I would not say positively, but it is something like 51 per cent increase in the pay. Instead of the $228 he would probably have drawn—well, it would be increased by 50 per cent.

Mr. Stone: May I ask you a question there, Mr. Sheean?

Mr. Sheean: Surely.

Mr. Stone: Do you mean by that that each individual engineer's rate will be increased 51 per cent on the Santa Fe?

Mr. Sheean: No, I could not say that that was true, but that applying the schedule to this month's operation, which is the same month's operation to which their proposal was applied, on the Santa Fe system as a whole, it brings about that result. But, as to whether it would effect just that percentage with this run or not, I don't know. But, I think Mr. Stone will agree with me in the statement, that the pay under the proposed schedule would have been larger, without stating the percentage; and that he would have drawn more than $228 if the schedule had been in effect.

Mr. Stone: I would agree to that with this reservation, that there is no 50 per cent increase requested for that class of engine, and if the railroads could so change their method of operation as to take care of the penalty time, it would not be a very large increase.

Mr. Sheean: I don't know, of course; I assume there is not much penalty time in this, Mr. Stone. But, in answer to the Chairman's question, I thought we could agree that as to any individual operating in this month, or at least as to

this individual, there would have been something more than $228 drawn by him, had the proposal been in effect during the twenty-four-hour days he was working.

Mr. Stone: That is true, except the fact that this operation has gone by, and it is past history, and it may never happen again under the same conditions.

Mr. Shea: Mr. Keefe, what class of engines were used in this service?

Mr. Keefe: I only judge from what the witness C. Jackson testified to, that they had Mallet engines on that district.

Mr. Stone: I think they are all Mallets on that district, Mr. Shea.

Mr. Shea: What rate do the Mallet engines carry?

The Chairman: Mr. Keefe, could this be said to be a fairly average month of the year 1913?

Mr. Keefe: As to their wages?

The Chairman: As to the amount earned by these men; as to the amount of service performed.

Mr. Keefe: It is a representative month of the wages that the men drew in all branches of service.

Mr. Stone: Mr. Chairman, I do not want to undertake to cross-examine the witness, but I would like to ask him one question on that, if I might be allowed.

Mr. Sheean: Surely.

The Chairman: You may do so. I merely want to get the facts.

Mr. Stone: Is it not a fact that the month of October, 1913, is the highest point in railroad operations for both tonnage and earnings of those five years?

Mr. Keefe: For all of the railroads? I don't know.

Mr. Stone: Western territory.

Mr. Keefe: I don't know, Mr. Stone, frankly I never made any inquiries, that it is the largest month in 1913 as to the gross amount of payments for engineers and firemen.

Mr. Park: Mr. Keefe, the amount of business done in any particular month would not affect the pay of individuals in certain classes of service, would it? The amount of business done on the road during the month would not necessarily have any affect on the individual pay of a man, who had a regular engine on an assigned run?

Mr. Keefe: No, in the regular assigned service, the fluctuation in the business does not affect them perceptibly, in line with what it does in the chain gang or pool service.

Mr. Park: Even in pool service, if there is elected to have only so many men during certain months, the wages might be just as much in June as they would be in October?

Mr. Keefe: Yes, sir.

Mr. Park: Individually, but not collectively.

Mr. Keefe: It is either a $6.20 rate or $6.40 rate, Mr. Shea. It is a $6.20 rate.

Mr. Sheean: The through or irregular freight service is shown for all the lines where there is—

Mr. Park: Mr. Sheean, before you leave that, Mr. Keefe, what is your present rate for Mallet engines?

Mr. Keefe: Six dollars and twenty cents.

Mr. Park: What is your proposed rate?

Mr. Keefe: Eight dollars.

Mr. Park: Now, applying that to this $2.40 earnings, on the Santa Fe, on page 103,—I think it is Butler—it is Caraway, what would be earned if that wage went into effect? That is, Caraway, fourth line on the Plains Division, page 103, $240.83.

Mr. Keefe: I don't know whether they have the Mallets down in that territory.

Mr. Park: Say it was a Mallet. I understand the engineer that testified was from that territory.

Mr. Keefe: No, it was Mr. Jackson. I would rather you applied it to Mr. Jackson.

Mr. Park: All right.

Mr. Keefe: He made 3,530 miles, at $8 a hundred, would be $282.40.

Mr. Park: Now, is that mountain district? Did you apply 10 per cent?

Mr. Keefe: No.

Mr. Park: That is not mountain territory?

Mr. Keefe: No.

Mr. Sheean: You have not forgotten in that connection, Mr. Keefe, there is 30 minutes today, irrespective of that that must be added, because of preparatory time? Have you made any estimate of that?

Mr. Keefe: No, I have not added anything except the change in the rate.

Mr. Sheean: But in addition to that, you would have to compute, in addition to all this mileage which would give him the $282.40 for the 24 days that he worked, on each of those 24 days, there would have to be a computation of a 30 minutes, each day or each trip?

Mr. Keefe: Yes.

Mr. Sheean: As preparatory time?

Mr. Keefe: Yes.

Mr. Keefe: Yes.

Mr. Sheean: As part of time?

Mr. Keefe: Yes.

Mr. Sheean: A separate computation of all the time from the roundhouse to the outer switch, made separate and distinct from the mileage of the trip?

Mr. Keefe: Yes.

Mr. Sheean: Together with the numerous other things to which attention has been heretofore called, and plus the arbitrary time?

Mr. Keefe: From the outer switch to roundhouse, in addition to his road time.

Mr. Park: Are you sure that there is not a short piece of territory there over 1.8 grade, on that division?

Mr. Keefe: That Wellington-Waynoka district, as I remember it, Mr. Park, is that part of our Bee Line cut-off, where there is .6 maximum.

Mr. Park: It is pretty uniform?

Mr. Keefe: Yes, sir, the new line that was built to handle all our California traffic.

Mr. Park: But if there should be an intermediate portion of that which is 1.8 grade, you would add 10 per cent?

Mr. Keefe: If there was a grade of 1.8; but there is no grade.

Mr. Park: Even if it was in a valley, in the plains district.

Mr. Keefe: On that Mr. Jackson's time who drew $218.86 for the 3,530 miles, an average of 8.9 hours per day, if he had received the rate that the engineers and firemen have asked he be paid, he would be paid for his straight mileage allowance,

without computing anything for terminal delay, preparatory time, intermediate switching, or any of the other acquisites or trimmings, he would have got $282.40, instead of $218.86, or an increase of $64.40, approximately 30 per cent more.

Mr. Byram: At 80 cents an hour preparatory time, 30 minutes, that would be 40 cents a day more for the trips he worked. 40 cents a trip preparatory time, according to you?

Mr. Keefe: Yes. He would get an arbitrary 30 minutes preparatory time.

Mr. Byram: That would necessarily have to be paid?

Mr. Keefe: Yes, sir.

Mr. Byram: How many trips did he make?

Mr. Keefe: 28 trips.

Mr. Byram: You have to add 80 times 28, $14, more, to get just the rate for preparatory time. How much would that make?

Mr. Keefe: It is $11.20, instead of $14.

Mr. Byram: How much would that make?

Mr. Keefe: $11.20 in addition to $282.40 would make $293.60.

Mr. Sheean: You still have not taken into account the time from the roundhouse to the outer switch, which must be computed separately and paid for?

Mr. Keefe: No, sir, nor any of his intermediate switching, if he did any.

Mr. Sheean: Nor the time from the end of the switch to the outer yard limits, until he got into the yard?

Mr. Keefe: No.

Mr. Sheean: Which must be computed separately under the proposition?

Mr. Keefe: Yes.

Mr. Sheean: But Mr. Jackson's performance for that month, as well as the performance for each of these individuals, as shown by their time slips, has been applied to the proposal, and it forms part of Exhibit No. 3, in which we have set out for the territory as a whole, as well as for individual roads, the cost which would accrue under the proposal?

Mr. Keefe: Yes, sir.

Mr. Sheean: Running through this through freight serv-

ice, Mr. Keefe, there are shown various amounts, two hundred and sixty sixes and two hundred and fifties?

Mr. Keefe: Yes, sir.

Mr. Sheean: Variations in mileage, as well as variation in number of days worked?

Mr. Keefe: Yes, sir, and in time consumed. Page 106 there is one $322.45; another, $312.30; another, $334; another, 303; another, $325; another, $319; another, $327; another, $321; another, $316; another, $328; another, $320; another, $358.70.

Mr. Sheean: Those are on the Canadian Northern, where they work very long hours, and the matter of tieing up is left to their own discretion?

Mr. Keefe: Yes, it shows they work much longer hours on that road than they do in the States.

Mr. Sheean: And the length of hours is shown on these?

Mr. Keefe: Yes, sir.

Mr. Park: Under their schedules, are they permitted to call for rest at their option?

Mr. Keefe: I have not examined the rules of the Canadian Northern in that respect, Mr. Park.

Mr. Burgess: All these higher rates, Mr. Keefe, that you have just read, and a further perusal of the sheet shows that in nearly every instance they are 15, 14 and 16, and 17 hours on the road?

Mr. Keefe: I called the attention that they were a long time on the road.

Mr. Burgess: In some instances 19 hours on the road?

Mr. Keefe: Yes, sir; I presume so.

Mr. Park: They do not seem to have laid off very much.

Mr. Keefe: The next sheet shows a number of three hundred dollar men: $313; $327; $334; and $307. All the other sheets show $170, $180, and $200 are common figures.

Mr. Sheean: Well, in this part of the exhibit, Mr. Keefe, for every one of the railroads and for every one of the men who worked exclusively on through freight service, the actual performance for that month is shown?

Mr. Keefe: Yes. I would like to refer you to page 116 of the Rocky Mountain division of the Chicago, Milwaukee & St. Paul Railroad. It shows a number of instances where engineers earned $5, $5.50, $14.80 on that division, but in the note

opposite you will find that they earned additional compensation in the construction department of that railroad. They were building a new railroad in that month, and the employes in the construction department were carried on the construction department payroll, and the comparison is not included in the totals of the payrolls shown on this exhibit.

Mr. Sheean: But the notation there shows the amount that was earned in the construction department?

Mr. Keefe: Yes. In one case $232.96.

Mr. Sheean: Mr. Keefe, it was found, was it not, that in a great many cases individuals were carried in more than one place on the payroll, and in order to get them together, the best effort was made to avoid such duplications by bringing the men together, where you found that it was the same individual?

Mr. Keefe: Yes. Of course, all of these payrolls were operating department only, and all of the payroll figures here are for the operating department. Some of the roads under construction had a construction department, a separate and distinct organization, and these gentlemen were evidently borrowed from the operating department for the construction service, and paid separately on the construction rolls.

I simply call attention to that because in our summaries hereafter I will refer to those instances of that character.

Mr. Park: But you have not included in any of your statements any constructive mileage. That is not reported to the Interstate Commerce Commission?

Mr. Keefe: No, never. Here is shown actual miles made.

Mr. Park: So, in any other report, where you have used mileage, where you have taken from the Interstate Commerce Commission reports or otherwise, you have not used any constructive mileage, that is, where roads are under construction?

Mr. Keefe: No, sir.

Mr. Park: That is not reported, as I understand it, to the Commission.

Mr. Keefe: No.

Mr. Sheean: Anything calling for explanation as to this through freight service, Mr. Keefe?

Mr. Keefe: No.

Mr. Sheean: The explanations are here set out as given, wherever there are explanations, under the column "Remarks"?

Mr. Keefe: Yes, sir.

The next Section, Section No. 6, relates to engineers working partly in through or irregular freight service and partly in other service; the greater portion of wages being derived from through or irregular freight service.

Mr. Keefe: These sheets show a continuation of the $200 or over compensation received by the men, and also a considerable number between $159 and $200.

Mr. Sheean: And in this part of the exhibit, wherever the greater portion of the service was run in through or irregular freight, the entire earnings of the engineers for that month are shown?

Mr. Keefe: Yes, sir.

Mr. Sheean: Anything particularly to which you wish to direct attention, except the fact that all the detail is here available?

Mr. Keefe: It is all here. It will be interesting to note page 149, showing the wages received by some more of those Santa Fe men who are low wages. They are $242; $203; $203; $204; $225; $246; $264; $220; $222; $240; $220; $223; $227; $204. On page 160, there are a few more $300 men. On this sheet, $333.90, that is the largest amount made in this class or service.

Mr. Sheean: And the service is thus combined, the through and irregular, with other branches of service?

Mr. Keefe: Yes, sir.

Mr. Sheean: As shown down to Section 7?

Mr. Keefe: Yes, sir.

Mr. Sheean: Now, under section 7, there has been assembled the engineers working part of a month as firemen, hostlers or motormen, the wages of engineers being greater than the wages as firemen, hostlers or motormen, and the greater portion of wages as engineer being derived from through or irregular freight service.

Mr. Keefe: Yes, sir.

Mr. Sheean: Just give us generally what the—

Mr. Keefe: Well, on page 391, a man here, both engineer and firemen, earned $267.65, engineer V. Erickson, on the Canadian Northern.

Mr. Sheean: And the various amounts in this combination of service, shown for the roads severally in the same way?

Mr. Keefe: Yes, sir.

Mr. Sheean: I notice at page 394, there is on that, Mr. Keefe, a notation there on the Black Hills Division of the Chicago & North Western, near the bottom of the page, where one man, Mr. Anderson, earning $21.75, was shown as earning $153.71 on the W. & N. W. Railway. That is another branch or division of the Chicago & North Western?

Mr. Keefe: That is a part of the road that is not in this movement, and they were not shown separately for that class of employes, but he worked on that road. In addition to earning $21.75 on the Chicago & North Western, he also worked on the W. & N. W. Railroad, and drew $153.71 there, making total earnings $175.46. The only figures we have taken into our account, however, are the earnings of the North Western.

Mr. Sheean: He worked, according to this, two and one-half days on the Chicago & North Western, and got $21.75.

Mr. Keefe: Yes, sir.

Mr. Sheean: And the rest of the month, he earned $153.71 on another railroad?

Mr. Keefe: Yes, sir.

Mr. Sheean: Anything further, Mr. Keefe, as to this section 7?

Mr. Keefe: No, sir.

Mr. Sheean: At section 8, you have shown engineers working entirely in local or way freight service, during that month.

Mr. Keefe: Yes, sir.

Mr. Sheean: Give us some idea about what the showing is, entirely in local or way freight service, page 412.

Mr. Keefe: Why, they drew $180; $190; $215 and $220.

Mr. Sheean: Way freight are ordinarily assigned runs?

Mr. Keefe: Yes, sir.

Mr. Sheean: This part is those who worked on other service than that during the month?

Mr. Keefe: Entirely in way freight service.

Mr. Burgess: Mr. Keefe, take on page 412, A. D. Bowman drew $148.24.

Mr. Park: What page?

Mr. Sheean: 412.

Mr. Burgess: And he worked an average of 14.1 hours a day, is that right?

Mr. Keefe: Yes, sir, for twenty days.

Mr. Byram: Which one is that?

Mr. Keefe: The first one, page 412.

Mr. Burgess: Now, in glancing down this column under the heading of "Average hours per day," it seems to convey the idea that in nearly all these local freight runs, they are on duty from 12 to 14 hours.

Mr. Keefe: Well, there are a number of them less than ten hours. There are quite a number from ten to eleven hours. There are some that run as high as thirteen and fourteen hours; one fifteen hours, but they are—

Mr. Burgess: So this compensation in the column headed "Total" would be made up from not only the miles run, but for the hours in excess of ten hours also, would it not?

Mr. Keefe: Hours, where they are paid hours for compensation, yes. It might be that they were permitted to go eleven hours, before they got additional compensation.

Mr. Burgess: I was speaking of the 100 mile district.

Mr. Keefe: Oh, yes; where the district would be 100 miles. On page 431 is a case where the engineer of a local run on the Northern Pacific, Rocky Mountain Division, drew $302.61. He worked a full month of twelve hours a day.

Mr. Sheean: This is in local—

Mr. Keefe: In way freight service.

Mr. Park: You do not know what sized engine he had?

Mr. Keefe: No, sir.

Mr. Park: You could not apply the submission for increase asked for, to his pay.

Mr. Keefe: No, I do not know, but on this page there are quite a large number of them drawing around $225 to $250, $275 up to that $300, all of them on the road a considerable number of hours. There are a few of them under ten hours—under eleven hours, but they all show here their average hours per day, and also show their compensation, per month. They all seem to stick to their runs, pretty generally throughout the month. They seem to work twenty-seven, twenty-eight, twenty-nine and thirty days during the month.

Mr. Byram: There does not seem to be many of them thirty days, Mr. Keefe.

Mr. Keefe: There are a few of them, presumably because

the locals are worked, generally speaking—do not work Sundays.

Mr. Byram: Oh, yes, generally they do not work Sundays. That is why there are so many that are twenty-seven and twenty-eight days?

Mr. Keefe: Yes, sir.

Mr. Sheean: The local and way freight and all the details on the different roads continues down to page 438?

Mr. Keefe: Yes.

Mr. Sheean: And, beginning at page 438, you classify the engineers working partly in local or way freight and partly in other service; the greater portion of wages being derived from local or way freight service?

Mr. Keefe: Yes.

Mr. Sheean: That classification continues from page 438 down to 510?

Mr. Keefe: Yes.

Mr. Sheean: Now, in a general way, Mr. Keefe, what is shown as to earnings here, where men were in local and also in other service during the month?

Mr. Keefe: Why, it shows the same general situation that the preceding section showed. There were some of them over $300, quite a number of them over $200.

Mr. Sheean: And the length of time that they worked varies?

Mr. Keefe: Yes.

Mr. Sheean: Again, as in the preceding one, no inquiry having been made about the cause for any man laying off, except where his earnings were less than $100?

Mr. Keefe: That is correct.

Mr. Shea: Did you say those are extra men, Mr. Keefe?

Mr. Keefe: How is that?

Mr. Shea: Did you say that they were extra men?

Mr. Keefe: You mean less than $100?

Mr. Shea: No, these men on page 439.

Mr. Keefe: 439?

Mr. Shea: Yes.

Mr. Keefe: No, no inquiry was made as to why, for instance, the first man with $100.89 and who only worked 16 days, as to why he did not earn more.

Mr. Shea: What I meant by that was this: I see they are working in local, through freight, passenger and way freight. No doubt they were extra men, were they not?

Mr. Keefe: Probably pool men or extra men.

Mr. Shea: That is what I meant, pool or extra men.

Mr. Keefe: Yes, sir, but only where they made less than $100, did we attempt to find out why they made less than that; and in every case we have given the explanation as to why they made less than the $100, but have not attempted to ascertain the reason why they earned only between $100 and over.

Mr. Sheean: Well, running through these pages, I see $200, $232, $224, $129, $196, $207, $288, $306, and $327; that is again the Canadian Northern?

Mr. Keefe: Yes.

Mr. Sheean: And $327?

Mr. Keefe: That is the high man.

Mr. Sheean: The high man and long hours, again?

Mr. Keefe: Yes.

Mr. Sheean: On succeeding pages, $258—well, that is the Canadian Pacific, $258?

Mr. Keefe: Yes. $284 on the next one.

Mr. Sheean: Various sums above $200, and between $175 and $200, and between $150 and $175?

Mr. Keefe: Yes, sir.

Mr. Sheean: The information as to each road being obtainable in this part of the exhibit, and the index as to the particular road appearing as the first one of the sheets, in each of these sections?

Mr. Keefe: Yes, sir.

Mr. Sheean: Anything particularly as to this part of the exhibit, Mr. Keefe?

Mr. Keefe: No.

Mr. Sheean: Then at page 510, Section No. 10, you have assembled the engineers working part of the month as firemen, hostlers or motormen; wages as engineer being greater than wages as firemen, hostler or motormen, and the greater portion of wages as engineer being derived from local or way freight service?

Mr. Keefe: Yes, sir.

Mr. Sheean: That shows at the beginning of it $170 and $172?

Mr. Keefe: Yes.

Mr. Sheean: The next page shows down as low as $113 for a man who worked 13 days?

Mr. Keefe: Yes, sir.

Mr. Sheean: And the performance in that way of mingling the service is continued through to page—

Mr. Keefe: On over to page 516, where it shows $205.69 on the Salt Lake Division of the Denver & Rio Grande.

Mr. Sheean: Let me see, page 516, Salt Lake Division, Frank Sawyer was an engineer on a mixed train for 12 days, an engineer on a freight train for 6 days, and a fireman in mixed service for 13 days?

Mr. Keefe: Yes, sir.

Mr. Keefe: Apparently Mr. Sawyer worked 31 days in the month?

Mr. Keefe: Yes, sir.

Mr. Sheean: And drew $205.69?

Mr. Keefe: Yes, sir.

Mr. Sheean: At page 520 you have the engineers working entirely in yard or switching service?

Mr. Keefe: Yes, sir.

Mr. Sheean: Anything special to which you wish to direct attention there?

Mr. Keefe: No, this shows around $130, $135, $140 and $150 a month.

Mr. Sheean: Some yards showing 27 working days and others 30?

Mr. Keefe: Yes.

Mr. Sheean: Or, in the same yard, some showing 27 nights, and 30 days, or vice versa?

Mr. Keefe: We made no separation as to the day or night.

Mr. Sheean: You made no separation of that?

Mr. Keefe: No, sir. It goes up to one man on the Canadian Pacific who made $209.43. He, however, worked 15.9 hours for 30 days.

Mr. Sheean: But, generally, in the yard service, the hours shown here vary from 10 to 12 hours in yard service, sometimes running higher?

Mr. Keefe: Yes, sir.

Mr. Sheean: Generally speaking, however, there being nothing below the 10 hour period of service?

Mr. Keefe: 11 or 12 hours being the general run of hours worked by yard engineers, and the pay running about $135 or $145 a month.

Mr. Sheean: Anything more as to this branch of those exclusively in switching service?

Mr. Keefe: No, sir.

Mr. Sheean: Section 12, then, beginning at page 577, shows the engineers working partly in yard or switching service and partly in other service; the greater portion of wages being derived from yard or switching service?

Mr. Keefe: Yes, sir.

Mr. Sheean: In a general way, what does that show, Mr. Keefe?

Mr. Keefe: It shows ranging from $115 up to $150 or $160. I notice one man $178.92, the fifth man from the bottom on page 578. Generally it is around $125 to $135 a month. $150. There are a number of them from $160 to $170.

Mr. Sheean: Wherever the yard service furnished the greater part of the wages in that month, no matter what other combination was made with the yard service, is shown in this part of the exhibit?

Mr. Keefe: Yes, sir.

Mr. Sheean: Anything special as to this part of the exhibit, Mr. Keefe, that you wanted to explain or call attention to?

Mr. Keefe: No.

Mr. Sheean: Then the thirteenth section, beginning at page 621, assembles the engineers working part of the month as firemen, hostlers or motormen; with wages as engineer being greater than the wages as fireman, hostler or motorman, and the greater portion of wages as engineer being derived from yard or switching service?

Mr. Keefe: Yes, sir.

Mr. Sheean: Now, in this transitory stage of combined service as both engineer and fireman, what is the showing as to the earnings in that month?

Mr. Keefe: It averages, I presume, around $140 a month.

There is one man on that first sheet $192.50, on the Canadian Northern.

Mr. Sheean: On this portion of the exhibit, Mr. Keefe, is there anything you desire to call attention specially?

Mr. Keefe: No.

Mr. Sheean: All of this is summarized in a later exhibit, and we, simply, at this time, desire to get the detail, as to how it is divided and how assembled?

Mr. Keefe: Yes, sir.

Mr. Sheean: Section 14 assembles the engineers working entirely in pusher, helper, construction work, and so forth, putting in all of their time in that work, in that branch of service?

Mr. Keefe: Yes, sir.

Mr. Sheean: Some of those, I assume, would show pretty long hours?

Mr. Keefe: Yes, and some of them show large earnings. Some of them are rather long hours, particularly the Canadian lines.

Mr. Sheean: Well, on the first page of that exhibit, page 642, they seem to run up, some of them to $210, $228, and $231 on the Santa Fe?

Mr. Keefe: Yes, sir.

Mr. Sheean: And the earnings above $200, or whatever the earnings are, are shown on the different roads of this part of the exhibit as to this kind of work in that month?

Mr. Keefe: Yes, sir.

Mr. Sheean: Do you happen to have convenient there the highest earnings in that month?

Mr. Keefe: Yes, $307.62 on page 643, engineer A. Nelson.

Mr. Park: What road?

Mr. Sheean: Canadian Pacific.

Mr. Keefe: The Canadian Pacific Lines west of Fort William, Saskatchewan Division.

Mr. Sheean: Working 29 days on work train between Swift Current and Moose Jaw?

Mr. Keefe: Yes, sir, 13 hours a day.

Mr. Sheean: Thirteen hours a day.

Mr. Keefe: Yes, sir.

Mr. Sheean: And one deadhead trip?

Mr. Keefe: Yes, sir. On that sheet they show some very

large earnings, but they also show some long hours on duty. That is rather characteristic of that service.

Mr. Sheean: That is characteristic of construction work, is it not?

Mr. Keefe: Yes, and work train service.

Mr. Sheean: Having the engine ready before going to work on the construction gang?

Mr. Keefe: Yes, sir.

Mr. Sheean: And putting in with the gang the same number of hours and a little longer?

Mr. Keefe: Yes, sir.

Mr. Sheean: The next classification—

Mr. Keefe: Just a moment; on page 651, on the Denver & Rio Grande, helper service, an engineer there earned $306.37.

Mr. Park: What page?

Mr. Keefe: Page 651, an engineer drew $306.37 for 9.2 hours per day, between Minturn and Tennessee Pass.

Mr. Park That is on the main line?

Mr. Keefe: I am not familiar with the Denver & Rio Grande, but there are quite a number of those helper engineers in there that have drawn $281, $232, $221, $255, $251, $231, $233, $239, $306, $220; all of them working less than 10.2 hours per day.

Mr. Sheean: There is one there that I notice, $255.07, who seems to have worked 7.1 hours per day.

Mr. Keefe: Yes.

Mr. Sheean: 30 days in the month?

Mr. Keefe: Yes, sir.

Mr. Sheean: Another earning $251.75, working 7½ hours a day?

Mr. Keefe: Yes.

Mr. Park: This one Barrett, F. E., on the Salt Lake Division.

Mr. Keefe: Yes, he made $305.19, 31 days, making 9.8 hours a day.

Mr. Park: That is on Soldiers' Summit. That was before the grade reductions were made?

Mr. Keefe: I think a month or two before they were put into operation.

Mr. Sheean: Well, these men in the mountain district

there, in helper service, seem to run along from $175, where they work twenty-four days, or thereabouts, a month, up to $250, or $300 a month, where they work thirty days a month, seven and a half hours a day.

Mr. Keefe: Yes. The last man on that page, 651, was paid $282 for twenty-seven days' work, an average of ten and a half hours a day.

Sheet 653 shows the Great Northern, Helper, Pusher, Construction, Work, Gravel, Wreck, Belt Line, Transfer, or other Unclassified service.

There is a helper at Essex on the Kalispell Division, who drew $329.65 for ten hours work for thirty days.

Mr. Sheean: How far down the page is that?

Mr. Keefe: That is about the middle of the page.

Mr. Sheean: Oh, Kalispell Division.

Mr. Keefe: Kalispell Division, yes. Alex D. Pauline.

Mr. Sheean: Helper at Essex?

Mr. Keefe: Yes.

Mr. Sheean: Ten hours a day.

Mr. Keefe: Yes.

Mr. Sheean: A total of 304 hours during the month. Pretty nearly $1.10 an hour?

Mr. Keefe: Yes.

Mr. Sheean: For all the time that he worked?

Mr. Keefe: Yes.

The Chairman: On what basis was he paid, in order to reach that result?

Mr. Keefe: I take it that that was a large engine. I have not the details as to the class of engine that he was paid for, but it was paid in accordance with his schedule.

The Chairman: I see there are other men working fifteen hours a day who received much less wages, so it must be due to the size of the engine.

Mr. Keefe: Due to the size of the engine, and whatever the local conditions were that governed the conditions there. If I am not mistaken, that is a place where they have a 10 per cent differential.

Mr. Stone: What place is that?

Mr. Keefe: Kalispell Division, at Essex.

You will notice that every man running in that district,

Mr. Chairman, also drew relatively high wages. Another man, $291; another one, $275; another one, $237. The others did not work the whole thirty days. Undoubtedly some of it was due to the size of the engines, because a man who worked twenty-eight days, Mr. Swanson, drew $275. That was an average of eight hours a day, however.

Mr. Sheean: Your Honor, the one to which you called attention was in work train service, M. G. Sullivan, between Rexford and Troy. There are four helpers shown at Essex, Harry Koehler, the second one on the list, working twenty days, ten hours a day, and getting $179.75. Then George A. Parker, a helper at the same point, working twenty-seven days, averaging nine hours a day, $237.10. The next man, Pauline, to which we have referred, worked at the same point, at Essex, and averaged ten hours, $329.65, and Jerry Ryan worked twenty-seven days at the same point, nine hours a day, $291.70. And the next man, Ben Swanson, was at the same point, at Essex, for twenty-eight days averaging eight hours, and drew $275.65.

I assume, that in the matter of helpers (I don't want this to be taken as a statement; Mr. Byram may know about that), as to the time on helpers, that if there is no train to be helped, that at the end of a day's time the man would be released, the helper's crew, without holding him on duty beyond this period of a day, so that during the month for the nine hours or during the ten hours he might be subject to call, if they wanted to call him during the ten hours.

Mr. Byram: Yes, he might be excused by the despatcher.

Mr. Sheean: There is one thing I do want to call attention to there, Mr. Keefe, on that page, I notice there Spokane Division. Just below where we were talking, there is an item, C. A. Fisher, $1.85, omitted time; and in the item below, Erickson, $6.75, omitted September time. I wish you would explain just why that elimination was made and what effort was made to get that out of the showing.

Mr. Keefe: Of course, this is the total of the payroll. We took every man that was on the payroll. These two gentlemen drew $1.85 and $6.75. That was part of their September time. They did not get their September check for it, but it was carried over into the October payroll, and we have shown in this payroll the amount of the omitted time.

Mr. Sheean: So that there would not appear here in the earnings for October, the amount that might have been carried, through bookkeeping mistakes or failure of any kind, where money was really earned in a previous month, but paid in this month, and that notation appears in some place as omitted September time, and it means that it was earned in some other month than the month of October?

Mr. Keefe: Paid in October.

Mr. Burgess: Does that refer to this particular case?

Mr. Keefe: All cases where there are the words "omitted time," is shown, and I am giving the explanation generally, for what the words "omitted time" means.

Mr. Sheean: You see, we asked why L. D. Erickson only got $6.75 in that month. The explanation came that Mr. L. D. Erickson got that much money for having worked in the preceding month.

All the exclusively helper, construction and work train service is shown on the remaining part of this section?

Mr. Keefe: Yes, all the pusher and helper men seem to make, where they work the full month, $200, $220, $240 a month.

Mr. Sheean: Then at 15, you have assembled the engineers working partly in pusher, helper, construction and so forth work, but a greater portion of their wages being derived from this kind of service, where they combined it with something else?

Mr. Keefe: Yes, sir.

Mr. Sheean: This pusher service, speaking broadly, Mr. Keefe, that we have just passed now, is assigned service?

Mr. Keefe: Generally speaking, it is assigned service, yes.

Mr. Sheean: Ordinarily, thirty-one days a month there, if a man wanted to work the thirty-one days, generally speaking, in the pusher service and helper?

Mr. Keefe: That is my understanding of it, yes, sir.

Mr. Sheean: This part of the exhibit shows where they worked in that kind of service, part of the month, and combined it with another kind in another part.

Mr. Keefe: Yes.

Mr. Sheean: But in a general way, what does this part of the exhibit show?

Mr. Keefe: Why, it shows the same general earnings that the men received in the straight pusher, helper, mine-run serv-

ice; a little more variation, because of the fluctuation or the difference in the character of the work throughout the month.

Mr. Sheean: Anything more as to Section 15?

Mr. Keefe: No, sir.

Mr. Sheean: And at Section 16, you have shown the engineers working part of the month as firemen, hostlers or motormen?

Mr. Keefe: Yes, sir.

Mr. Sheean: But the greater part of their wages being as engineers in this pusher, helper or other unclassified work?

Mr. Keefe: Yes, sir.

Mr. Sheean: This separation into services, Mr. Keefe, was made to show, as far as possible, the relationship of those different services—the intermingling of them?

Mr. Keefe: Yes, to show separately what wages are drawn by the men who are engaged exclusively in these various classes of service, and then what they draw when they perform some other character of service, during the same month.

Mr. Sheean: Now, as to this last part of Section 16, do you care to call any particular attention to any of the items there?

Mr. Keefe: On page 708, the Denver & Rio Grande also have another case where they paid an engineer $213.77, for helper service. He also was a fireman that same month. However, he was only one day as fireman. He worked twenty-six days as engineer and one day as fireman, for which he drew $213.77.

Mr. Sheean: Now, you have caused this same separation or compilation to be made as to the firemen?

Mr. Keefe: Yes, sir.

Mr. Sheean: For this month of October?

Mr. Keefe: Yes, sir.

Mr. Sheean: And that is Exhibit 27?

Mr. Keefe: Yes.

Mr. Sheean: Mr. Stone, I think it will be more convenient and satisfactory to you if I run through both the engineers and firemen and the summaries—

Mr. Stone: If some of this don't get cold in the meantime.

Mr. Sheean: If you would rather cross-examine on this, it is entirely agreeable.

Mr. Stone: I think I would.

Mr. Sheean: All right.

RE-CROSS EXAMINATION.

Mr. Stone: In this Exhibit, Mr. Keefe, those average hours that you show is the actual time between terminals, is it not?

Mr. Keefe: No, it is the total compensated hours. That is, under the instructions you will note provided for, the following: "The hours reported should be the actual hours between terminals, plus any terminal allowance for which he receives compensation."

Mr. Stone: And if that was preparatory time for which he received no pay, or if he was delayed around the terminal and then ran it out afterwards, in miles, that would not show?

Mr. Keefe: If he received compensation for his preparatory time, or terminal delay, it would be shown.

Mr. Stone: But if he didn't, it would not?

Mr. Keefe: Not be shown.

Mr. Stone: So it is possible that on many of these roads where they do not pay for terminal delay, the men might have given two, three or four hours more per trip than what is shown here?

Mr. Keefe: I am not acquainted with schedules that permit that much terminal detention, but if there should be one or two, or any number of them do have those conditions, it would be shown only as actual compensated hours.

Mr. Stone: What percentage of these men—of all the men shown, some fifty-five or sixty thousand—some twenty-three thousand engineers, what percentage of them are over $300 a month?

Mr. Keefe: I have a summary showing—

Mr. Stone: A later exhibit?

Mr. Keefe: Yes, sir.

Mr. Stone: All right. Just strike out that question then. I think you show in there where the extra passenger men earned only a small wage. One man, I see, earned $49, another man earned $77. That was one case where seniority worked against the man, was it not? The senior man was compelled to do the extra passenger work.

Mr. Keefe: What road was that, do you recall? I would not want to subscribe to that, Mr. Stone.

Mr. Stone: It is on page 4, on the Santa Fe.

Mr. Keefe: I see one for $83, one for $77, and one for $71, extra passenger men, and I understand that they had seniority; that they could have held their runs, if they desired to, but preferred to do the extra passenger run for what they could get in it.

Mr. Stone: Oh, yes, he could probably have gone back on freight and moved off some terminal to somewhere else.

Mr. Keefe: He could have exercised whatever rights his seniority gave him.

Mr. Stone: But his right of seniority gave him the right to do the extra passenger work?

Mr. Keefe: If he so chose. If he chose to do that class of work, he had the opportunity of doing it.

Mr. Stone: And in order to get a regular passenger run, in his turn, it would be necessary to do the extra passenger work, would it not?

Mr. Keefe: Sir?

Mr. Stone: In order to get a regular passenger run, in his turn, it would be necessary to do the extra passenger work, would it not?

Mr. Keefe: I do not so understand it, no, sir.

Mr. Stone: They do in some schedules.

Mr. Keefe: Well, none that I am familiar with.

Mr. Stone: Could he have stayed there on fast freight until a daylight passenger run became vacant, and then taken it on your line?

Mr. Keefe: No, sir, not on our line. Not on the G. C. & S. F. I am referring to.

Mr. Stone: I note you say on the Canadian Northern there, where one of those passenger men made $331. Unfortunately I did not get the case.

Mr. Keefe: $341, you say?

Mr. Stone: $331, sheet No. 30, I think, page 30.

Mr. Keefe: $304.98, on page 30.

Mr. Stone: Not a Canadian Northern man, D. & R. G. man, $304.

Mr. Keefe: Yes.

Mr. Stone: He made 6,566 miles, is that right?

Mr. Keefe: Yes.

Mr. Stone: Is it not a fact that that is really two months work in one?

Mr. Keefe: He did it in an average of 9.1 hours a day.

Mr. Stone: I am not talking about the hours. He was paid by the mile, was he not?

Mr. Keefe: Yes, but I am giving you the number of hours he consumed. He consumed 265 hours.

Mr. Stone: In running that 6,566 miles, the company, no doubt, got paid for passenger, express and mail for every mile he pulled that train, did they not?

Mr. Keefe: Yes, and he did it in twenty-three days time.

Mr. Stone: So the company got just as much revenue as though two men had made that mileage, did they not?

Mr. Keefe: The number of men drawing a passenger train does not affect the revenues of the company, as far as the gross revenues are concerned.

Mr. Stone: How long do you think a man could keep up that rate and run 6,500 miles a month, in that heavy mountain service?

Mr. Keefe: If you will look at everything on that page 30, you will find they seem to be able to do it very successfully. The first man drew $276; next man, $262; next, 247; next, $267, then the $304 man; $253, $288, $281, $247.

Mr. Stone: Are we to gather from that, from the way you read it, that you understand that is the average wage of these men, year in and year out?

Mr. Keefe: That is the earnings they actually drew, in the month of October, 1913.

Mr. Stone: You do not know whether he ever drew that much, before or since?

Mr. Keefe: I might be able to tell you that, whether there are any of those men did draw that for the year. I may have the information for the year on some of those gentlemen.

Mr. Stone: When you were selecting these typical men for the year, did you select the average wages for all the men, too, in your exhibit for the same year?

Mr. Keefe: We show the earnings of the typical men, for the entire year.

Mr. Stone: Have you got the wages of all the rest of the men, who were not typical men, for the year?

Mr. Keefe: I have not, no, sir.

Mr. Stone: On page 42, you show an M. K. & T. man who made 6,000 miles and made $341.60.

Mr. Keefe: Yes.

Mr. Stone: In order to do that, he worked 13.2 hours per day, is that correct?

Mr. Keefe: He was compensated for 13.2 hours per day. Whether he actually put in that many hours, I can't say.

Mr. Stone: He was paid by the mile, was he not, and he used up that many hours in running that many miles.

Mr. Keefe: I am not certain whether he was paid by the hour or by the mile. I judge he was paid by the mile, however, Mr. Stone.

Mr. Stone: Well, what is the hourly overtime rate on the M. K. & T. We can soon tell whether he was paid by the hour or the mile?

Mr. Keefe: Computed on the basis of 20 miles per hour, and paid for on the basis of 10 miles per hour.

Mr. Stone: What class of engine was it? What rate was the overtime rate?

Mr. Keefe: 41½ cents for engines under 18 inch cylinders, and 44 cents per hour for engines 18 inches and over.

Mr. Stone: If he had been paid the rate of 44 cents an hour, he would have been paid $173.80, so it is very evident he was a piece worker on a mileage basis.

Mr. Park: It shows his trips at 3.3 hours per trip? Could there be constructive mileage in some way there?

Mr. Keefe: That is the run this morning that I am going to obtain details on, and as I am asking for those details I would rather wait the arrival of them.

Mr. Park: You don't know whether this 6,000 miles is actual or constructive?

Mr. Keefe: No, I don't.

Mr. Stone: In this suburban service that you show the time paid for, there is nothing to show these separate tricks that this man testified to on the witness stand, where they went to bed twice in the same day in order to get sleep enough?

Mr. Keefe: No, it just shows the hours he was compensated for.

Mr. Stone: You just group it together?

Mr. Keefe: Yes.

Mr. Stone: It might interest you to know that that man who made those heavy earnings on the Denver & Rio Grande cannot hold a job on the regular board but is back on the extra board, so it is not altogether likely he is making that earning at the present time.

On this Canadian Northern that has been spoken of several times, in regard to the long hours and the fact that there is no sixteen-hour law in Canada, and I think you gave assent two or three times to the statement that the men only tied up when they wanted to, is it not a fact that the trainmen are not allowed o tie up whenever they want to without first consulting with the officer in charge of operation?

Mr. Keefe: I don't know what the train rules are. I have not made any examination of the trainmen's schedule.

Mr. Stone: Well, take any train crew, you couldn't tie up on the road wherever you pleased, without first getting permission from the despatcher on duty, could you?

Mr. Keefe: I think the rule provides "upon notification to the train despatcher, they will be permitted to tie up." That is my recollection of the rule. I can get it right here.

Mr. Stone: It is not necessary. But it is a fact they always ask and get permission from the operating officials before they tie up?

Mr. Keefe: I would not doubt it. The rule provides, doesn't it, Mr. Stone, that they may tie up after notifying the despatcher?

Mr. Stone: I think that is the way it reads, but it is always used to get them to some convenient point to tie up, if possible. And it is also a fact, is it not, that crews always want to get into a terminal if they can. They don't want to tie up en route out on the road.

Mr. Keefe: I don't know whether the crews desire to tie up on the road.

Mr. Stone: It is also a fact that at the present time, in Canada, the Fourteen-Hour Law has passed the second reading of the House and will no doubt become a law in the near future,

so that the Fourteen-Hour Law in Canada is two hours shorter than the law in the States?

On page 116, you show a high rate for a Chicago, Milwaukee & St. Paul man who was on construction work on the frontier, I believe, on the Puget Sound Line. Is it not a fact that these men on the frontier, building new roads, go through all kinds of hardship? That men back in the country that is populated have more hours in every way for eating and sleeping, and all that? Have you ever had any experience on the frontier, building track?

Mr. Keefe: No, I have not, any more than going to the camp.

Mr. Stone: Then you have some idea of what the camps are, and what a man puts up with?

Mr. Keefe: Yes.

Mr. Stone: It is pretty hard lines, is it not?

Mr. Keefe: Yes, it is not living like it is at home or in a city, but it is true, too, is it not, that these runs are accepted from choice?

Mr. Stone: Not necessarily. A man may go out on the frontier in the hope when it is established he will get a run, something of that kind. But it is also a fact that a man will work a week at a time without taking his clothes off, and sleeping on his engine, or wherever he can sleep?

Mr. Keefe: I don't know about that situation, Mr. Stone.

Mr. Stone: On page 160, that man McCredie, who made that Governor's salary, that month, $333.90. If I get your figures correct, he worked 19 days on through freight and made 2,453 miles, at an average of 14.4 hours per day. Is that correct?

Mr. Keefe: That was his compensated hours, yes, sir.

Mr. Stone: Then he worked 12 hours on way freight and made 1,670 miles, at an average of 18 hours a day?

Mr. Keefe: Yes, compensated hours amounted to 18.

Mr. Stone: Or he made 489.6 hours for the month?

Mr. Keefe: For which he received $333.90.

Mr. Stone: An average of 15.3 hours per day for a 31-day month. How long do you think a man would live and work under those conditions?

Mr. Keefe: I haven't any idea, Mr. Stone.

Mr. Stone: Well, you are satisfied he would not live a great while, aren't you?

Mr. Keefe: Some men would, and some would not.

Mr. Stone: Well, is it "living" at all, when a man has to work 18 hours a day that he is compensated for, and probably has to give 3 more hours' time getting ready and going to and from his work besides?

Mr. Keefe: I think you have forgotten what road this is, haven't you?

Mr. Stone: Yes, I know what road it is, the Canadian Northern, and if it will interest you in the least we will be glad to furnish you time tickets showing men on duty all the way from 24 to 30 hours. We have plenty of them right here in the city.

Mr. Keefe: But I was referring merely to the compensated hours. I didn't understand there was any condition of that kind on the Canadian Northern.

Mr. Stone: He is probably some hours getting to and from his work from the time he was called and until he gets home and goes to sleep again.

Mr. Keefe: You figure he ought to be compensated from the time he gets out of bed until he pulls out of town? Is that it?

Mr. Stone: We figure he at least ought to have a little time to sleep, and I am wondering where he got time to sleep. And if he used several more hours more each day going to and from his work. However, when we get down a little further here, it will not be any trouble to show that.

Mr. Shea: I would like to ask a question right there. I want to ask Mr. Keefe if, in his opinion, he thinks an engineer or fireman is giving good service when he is required to work on an average of 16 hours a day in each 24 hours?

Mr. Keefe: My own personal opinion is that they are not able to give the service that the company has a right to receive from them when they work 16 hours a day. That is, of course, said without any criticism of the Canadian Northern or anyone else. Of course, this is compensated hours, and on that road I understand they get some extra allowances for preparatory time and arbitrary, which of course would go into the hours and would make up some of the hours that were shown here.

Mr. Stone: On page 580, you show engineer McNevin got $239.70. He worked twenty-nine days in the yard, and averaged 16.3 hours per day. That is shown on page 580. Then he made two trips on the road, and was two days on the road, twelve hours each day, making twenty-four hours, or a total of 497 hours for the month. The humane society would not allow you to work a government mule that many days in the month; you would be arrested for it; and yet these engineers make that, and all this man got out of that for all those hours, for really doing two men's work, was $239.70, if my figures are correct.

Mr. Burgess: Pardon me, Mr. Stone, but have you calculated what that is per hour, what rate per hour?

Mr. Stone: No, I have made no calculation as to that. I would say, at a rough guess, it would run somewhat about—well, I will tell you in a minute.

Mr. Keefe: It would run 45 cents or 50 cents an hour, would it not?

Mr. Stone: It would run somewhere around 45 cents or 47 cents an hour.

Mr. Keefe: A little over 48 cents.

Mr. Stone: 48 cents an hour.

Mr. Keefe: That was in yard service, I understand.

Mr. Stone: Yes, I understand that was in yard service, all but two trips.

Mr. Keefe: All but two trips, yes.

Mr. Stone: He made two trips on the road.

Mr. Keefe: Yes, twenty-nine days in yard service, and two days through freight.

Mr. Stone: Take your page No. 643, right down at the bottom of the page, or not at the bottom of the page; I should say that it is in the Saskatchewan Division of the Canadian Pacific: you dwelt at length on the earnings of Engineer Nelson. I want to call your attention to J. W. Rogers, just above him, who worked nineteen days at 23.8 hours per day. It didn't take much figuring to see where he slept, did it?

Mr. Keefe: He was in work train service, was he not?

Mr. Stone: I guess he was.

Mr. Keefe: Yes.

Mr. Stone: And he worked all the time, too, from the figures, it would seem?

Mr. Keefe: He probably was paid for all the time, too, was he not, Mr. Stone?

Mr. Stone: I imagine he worked all the time, too, by the looks of the figures you give.

Mr. Shea: There is a man right above there that averaged 20.6 hours per day.

Mr. Sheean: He was paid that many hours per day.

Mr. Shea: Paid that many hours per day?

Mr. Keefe: Yes, he was paid that many hours per day. He received pay for 23.8 hours in one instance, and for 20.6 hours per day in the other instance.

The Chairman: What is the Chairman to understand by this? That he worked that number of hours?

Mr. Sheean: No, the schedule entitled him to that many hours pay.

Mr. Keefe: He was compensated for that many hours.

Mr. Stone: He must have been on duty or they would not have paid him.

Mr. Park: Was that a work train?

Mr. Keefe: Yes, sir.

The Chairman: It is confusing to a layman to have one side say that he worked that number of hours, and the other side say that he was paid for that number of hours.

Mr. Stone: As a general rule, Mr. Chairman, it is safe to assume that they do not pay the man unless he is on duty.

Mr. Sheean: It might still be true that he may be on duty and under pay, and not working.

The Chairman: Is there anyone who can tell us exactly what the situation is?

Mr. Sheean: Not without getting the detail of just what was done there. Of course, the Canadian Northern schedule—

Mr. Keefe: This is the Canadian Pacific.

Mr. Sheean: Is this the Canadian Pacific?

Mr. Keefe: Yes.

Mr. Sheean: I don't know as to the Canadian Pacific, but the Canadian Northern schedule computes their time from thirty minutes before they leave, and ends forty-five minutes after their engine is delivered at the end of the day. You have always in the Canadian Northern schedule, an hour and a quarter, or

forty-five minutes at the end of the trip, and thirty minutes at the beginning of the trip to take into consideration.

Mr. Stone: Figuring the hour and forty-five minutes you claim and deducting it from the 23.8 hours, how long did he sleep?

Mr. Sheean: I don't know what their work train rule is. I will try and see what their work train rule is, Mr. Stone, as to whether they pay continuous time. I don't know, in fact, whether there is a specific work train rule in the Canadian Pacific schedule. This is the Canadian Pacific, you say, Mr. Keefe?

Mr. Keefe: Yes.

Mr. Stone: He worked nineteen days for 23.8 hours per day, and I guess he laid off the other twelve days to sleep.

Mr. Keefe: But in that nineteen days that he worked, he drew $211.11.

Mr. Park: It may have been that he was employed on a work train, or on wrecks, or on a snow plow, or something of that kind.

Mr. Stone: In October? This was all in October, was it not?

Mr. Park: I have seen snow in October.

Mr. Stone: So have I, and I have been up to it in October, but as a rule they don't plow snow in October.

Mr. Keefe: This was up in Canada, Mr. Stone.

Mr. Stone: I know it was. Let us take one that is not up in Canada. Turn to page 653. On page 653, in that Great Northern Helper, you show there where a man in that Kalispell country, at Essex, in helper service, worked 304 hours in thirty days, and drew $329.65?

Mr. Keefe: Yes.

Mr. Stone: That is an hourly basis you show that on, is it not?

Mr. Keefe: Yes. We show no trips or miles for that class of service.

Mr. Stone: All right. Now, the heaviest rate on the Great Northern is $6.50 for Mallet service, and 10 per cent added to that would make it $7.15. Multiply that by the 304 hours, that he worked, and what do you get?

Mr. Keefe: What was the rate you stated?

Mr. Stone: $6.50 plus 10 per cent, or $7.15.

Mr. Keefe: $216.66.

Mr. Stone: $215.66?

Mr. Keefe: $216, I made it.

(Correct figure, $217.36.)

Mr. Stone: $216.66?

Mr. Keefe: Yes. Is that correct.

Mr. Stone: That is right. And yet you show him getting, for that, $329.65.

Mr. Keefe: That is what he drew on the payroll, yes, sir.

Mr. Stone: Assuming your figures are correct on the payroll, then this hourly basis you put up here does not show anything, does it?

Mr. Keefe: It shows the number of hours that he was compensated for according to the payroll.

Mr. Stone: But from this exhibit, you would naturally lead anybody to believe that they are paid by the hour?

Mr. Keefe: Well, they haven't the miles or the trips made in helper service, Mr. Stone. They don't show either the miles or the trips made in helper service. They only show the hours for which they are compensated. That is what the 304 hours shows.

Mr. Stone: All right. You say they take the hours that they are compensated for?

Mr. Keefe: Yes.

Mr. Stone: Take the highest rate they have got, and I don't know whether that is the rate on that engine there, but that is the highest rate on the Great Northern road, and you can't get within $100 of what you show.

Mr. Keefe: I will refer to the payroll figures and get the payroll figures and find it out absolutely, if you desire, Mr. Stone.

Mr. Stone: The only thing I want to show as to this, Mr. Chairman, is that this statement in regard to this pay by hours is misleading, and the fact that the man is paid by hours is not correct.

Mr. Keefe: They do not compute the miles or trips in helper service, and for that reason we do not show either the miles or trips for helper service. We have not shown it on any of these by mileages.

Mr. Stone: I know you haven't. That is the reason why your figures are not right.

Mr. Keefe: I don't know how that invalidates, or how that affects the compensation that the man drew at the end of the month on the payroll.

Mr. Stone: You do show thirty days and 304 hours for this man?

Mr. Keefe: Yes, sir.

Mr. Stone: And taking the highest hourly rate they have on the road, you cannot get within $100 of what you say he drew.

Mr. Keefe: Suppose he was paid in that case—or I will ask you, what is a helper paid at Essex? What does the schedule provide he shall be paid, by hours or miles?

Mr. Stone: Well, supposing he was paid by miles.

Mr. Keefe: If he was paid by miles, would he put in 304 hours?

Mr. Stone: Ten hours or less, they say.

Mr. Keefe: If he was paid miles, that does not indicate that he did not work 304 hours. He may have made miles and still worked 304 hours, and still made $329.65, might he not?

Mr. Stone: He couldn't possibly have made miles and made it in that short helper service.

Mr. Keefe: Do I understand then that you question the accuracy of the 304 hours?

Mr. Stone: No, I am not questioning anything. It is your exhibit, and I am just showing you it doesn't hold together.

Mr. Keefe: You are questioning something, and I would like to know what it is. If you are questioning the number of hours or the amount, I can very easily verify either one.

Mr. Stone: You say that is the hours that he worked, and the number of days he worked?

Mr. Keefe: I say that is the hours he received compensation for.

Mr. Stone: And I am saying to you that the very highest rate is 71½ cents an hour on the Great Northern, which figures $216.66, and not $329.65.

Mr. Keefe: Mr. Alex D. Pauline received in the month of October the sum of $329.65, and he worked during that period 304 hours.

Mr. Stone: That is all, Mr. Chairman:

Mr. Burgess: Mr. Keefe, how could he get it if that is the highest rate of pay?

Mr. Keefe: Because he was paid miles, as Mr. Stone says, undoubtedly.

Mr. Stone: I did not say that.

Mr. Keefe: Pardon me. I thought you did.

Mr. Burgess: Might it not be that that was overdue money?

Mr. Park: Why not get the record of this man?

Mr. Keefe: I intend to get it, Mr. Park, by telegraphing for it.

Mr. Park: Yes, and not have us all guessing at it.

Mr. Stone: I beg your pardon, Mr. Chairman, I am not guessing at it at all, but I am taking their figures, and the highest rate they pay on the road, and applying it.

Mr. Park: I just say that we are guessing at it. You don't assume positively then that it is inaccurate?

Mr. Stone: I say, if that is the number of hours he worked, that I have taken the highest hourly rate on the Great Northern, which is 71½ cents an hour, and applied it to it. That is what I say.

Mr. Sheean: The Great Northern schedule shows particularly, does it not, Mr. Stone, provisions for helper service? I don't know whether this particular place is shown.

Mr. Keefe: In line with Mr. Stone's request, we will have the payrolls, the time slips, the train sheets, and everything that will indicate precisely just what this man drew, what he did, what miles he made, and what hours he put in, when we get the data Mr. Stone has called for, and we will verify or disprove the figures then.

Mr. Sheean: And you had better see whether or not they can furnish the receipt for that man for that amount of money paid, or not.

Mr. Keefe: I will secure a photographic copy of it.

Mr. Stone: I don't question that the man got the money, I have not questioned that at all.

Mr. Byram: Do you mean that he worked more than 304 hours for it?

Mr. Stone: I don't know whether he did or not; and I don't

question whether he earned the money or not. I am satisfied that he did.

Mr. Byram: The figures show that the man worked 304 hours in that month, the exhibit shows that?

Mr. Stone: That is what the figures show, yes.

Mr. Byram: Do you question that?

Mr. Stone: I am not questioning any of it; I am just asking the expert to explain.

Mr. Byram: That is what I mean, that the Board is to infer then that you don't think that figure is correct?

Mr. Stone: I think Mr. Keefe will have to acknowledge, himself, that if he was paid on an hourly basis, there was something wrong with the figures somewhere.

Mr. Byram: If he was paid on an hourly basis?

Mr. Stone: Yes.

Mr. Byram: Is that the basis of your question?

Mr. Stone: Applying the highest rate; and he is showing the hourly rate here, showing these men are working on an hourly basis.

Mr. Keefe: It is not intended, Mr. Stone, if you put that construction on it, that all of the men shown in this Section No. 16 are paid on the hourly basis. That was not the intent of the exhibit at all.

Mr. Stone: You don't show how many miles for any of them?

Mr. Keefe: No, but it is not intended to imply that they were paid on the hourly basis. It was at no time stated that the men shown in this Section 16 were paid on the hourly basis. It simply shows the number of hours they worked, and the compensation they drew. It does not necessarily mean they were being paid on the hourly basis. No statement has ever been made that that was what the exhibit showed.

Mr. Park: He may have been out with a snow plow or a circus train?

Mr. Keefe: There are a large number of things I might suppose that he was doing, Mr. Park. I don't know. I can find out definitely, however, later.

Mr. Stone: It would be a new idea for helper engines to be out with circus trains.

Mr. Park: There are circuses go over to the Pacific Coast sometimes.

Mr. Stone: But he would not be thirty days getting that circus over the mountains, would he? I will tell you what I think the trouble is, Mr. Keefe, I think the man is paid on the basis of ten hours or less per day's work, and they have the right to run him out on the second trip within the ten hours, and they might work him sixteen hours, work him two trips, and pay him only 16 hours, or something of that kind. There is where I think the trouble is with your figures.

Mr. Keefe: They would have shown the hours for which he was compensated, if they complied with the instructions. Whatever hours he was being paid for would be shown here.

Mr. Stone: If a man did not get out for ten hours from the start of his first trip, a new day would begin, and there is where I think the trouble is with your figures.

Mr. Keefe: Then you doubt the correctness of the 304 hours, is that it?

Mr. Stone: No, but the way you apply it and the result you get from it.

RE-DIRECT EXAMINATION.

Mr. Sheean: The Great Northern has a schedule, has it not, Mr. Keefe, by which 100 miles or less, ten hours or less, will constitute a day in all classes of service, so that, under the operation of this rule, it may be, that on this division of which I profess to know nothing, the helper district may be only ten or twelve miles long, and the man may get two days' pay in case he is out eleven hours?

Mr. Keefe: I don't know whether that provision applies to the helper service or not. I would not want to qualify to give testimony on the Great Northern schedule.

Mr. Sheean: But the analysis of the Great Northern schedule, and its provision as to the helper service is shown in Exhibit 1 here?

Mr. Keefe: Yes.

Mr. Sheean: Has the Great Northern Railroad Company furnished the earnings of—what is this man's name, Mr. Pauline, Alex. D. Pauline?

Mr. Keefe: Yes.

Mr. Sheean: Mr. Pauline's earnings for the entire year were shown, month by month?

Mr. Keefe: Yes.

Mr. Sheean: How much did he earn for the year?

Mr. Keefe: $2,709.

Mr. Sheean: Did he lay off all of one month—or give us month by month what he did?

Mr. Keefe: His earnings for the month of July, 1913, were $219.70.

His earnings for the month of August were $167.40.

For the month of September, $250.

For the month of October, $329.65.

His earnings for the month of November were $307.60.

For December, $244.10.

January, $172.65.

February, he was off the entire month.

March, he earned $68.80.

In April he made $339.85.

In May he made $318.70.

In June he made $290.55.

His earnings were $2,709 for the year, and he was off duty seventy-nine days in the year.

Mr. Sheean: How many of them consecutive days there?

Mr. Keefe: At least 28 consecutive days in February.

Mr. Sheean: Now, some comment was made as to the attitude of a humane society, as to this man who earned $329 in one month, Mr. G. S. Chase. Will you give us his earnings for the month preceding and following that?

Mr. Keefe: He made $331.10 in the month of October, as shown by these October payrolls. In September he made $314.80; in August, he made $329.15. In July, he made $297.60.

Mr. Stone: Then, his average for the year, if I get your figures correctly, was $225.75?

Mr. Keefe: He made entire for the year $2,483.40.

Mr. Sheean: He laid off what length of time?

Mr. Keefe: He laid off 65 days.

Mr. Sheean: Mr. G. S. Chase, is that?

Mr. Keefe: Yes.

Mr. Sheean: That is the one about which Mr. Stone asked whether he had earned before or ever earned since this $329?

Give us the two months preceding and the two months following the $329, to which he referred in his question.

Mr. Keefe: The two months preceding, for the month of August, $329.15; September, $314.80; October, $331.10; November, $140.85; December, $139.25; January, $173.25, or a total for the year of $2,483.40.

Mr. Stone: Or an average per month of what?

Mr. Keefe: A little over $207 a month.

Mr. Nagel: How many days off?

Mr. Keefe: Sixty-five days off. He was off practically all—he was off 65 days.

Mr. Burgess: Do those 65 days include Sundays, Mr. Keefe?

Mr. Keefe: I do not know.

Mr. Stone: Neither do you know whether, after he made those big months, that he took time off for rest? It does not show.

Mr. Keefe: No, it shows here that in the month of February he laid off some time. He made $99.80 in February. That is his lowest earnings for the year.

Mr. Stone: That is all.

Mr. Sheean: Mr. Keefe, you were asked about these two firemen, in passenger service on the Santa Fe, the early part of this exhibit. Mr. Stone asked you as to whether or not they were obliged to hold this position as extra passenger men, in order to keep their seniority. What are the facts with reference to those two men—$77.79 man shown on page 4?

Mr. Keefe: Yes. C. W. Frisbie and Mr. T. E. Kelly—engineers Frisbie and Kelly were protecting the passenger extra board, as advised. They had sufficient seniority to hold regular assignments in freight service, but not sufficient to bid in regular runs in passenger service, and of their own choice, choose extra passenger board.

Mr. Sheean: Some reference has been made, Mr. Keefe, as to the rights or privileges of the Canadian Northern engineers to tie up for rest, and I think before, you gave the exact rule on the Canadian Northern and the matter was diverted to some other subject. What is the arrangement under the schedule on the Canadian Northern as to crews taking rest?

Mr. Keefe: Article No. 16 reads: "Engineers will not be

required to leave terminals until they have had at least eight hours rest, if requested. Such request must be entered upon booking in on register. Trains may be held up between terminals for engineers to obtain rest after they have been 15 hours on duty, upon advice to train despatcher, but if despatcher will cut out all way work and switching, trains may be taken through to terminals. Engineers to be judge of their own condition."

Mr. Sheean: Under that schedule and under the operations they are under, as you understand it, has the railroad company or its operating officials, any right to require engineers to book for rest, or to lay up a train between terminals?

Mr. Keefe: It is left entirely to the discretion and the judgment of the engineer himself, as to what he shall do.

Mr. Sheean: And under that rule, does not that give the engineer the absolute right, after 15 hours, whether the train despatcher desires or does not desire, except upon condition that he cuts out all switching?

Mr. Keefe: I would understand that that would be the proper interpretation to place on this article, just from reading it.

Mr. Sheean: And do you know whether or not, under the schedules on the Canadian roads, one member of a crew may elect to book for rest and the continuous time of the others run on, and will be shown as compensated time in this report of the Canadian Northern road? If, for instance, in the case where the engineer is shown as having compensated time 23.8 hours per day, in case the fireman, under their schedule booked for rest, after 15 hours, but the engineer did not do any booking, would he be entitled to the continuous time of 23.8 hours, although the fireman was taking his rest, in accordance with his request?

Mr. Keefe: If there are provisions in this schedule that they shall not be tied up between terminals, I would say so, but I have not looked to see if that provision is in there.

Mr. Sheean: Well, what you have shown here is the amount of compensated time under their schedules?

Mr. Keefe: Yes.

Mr. Sheean: And the reports of the road cover simply the amount for which the engineers in this exhibit—for which the engineers are entitled to compensation?

Mr. Keefe: Which they did not receive compensation for.

Mr. Sheean: And if, under the schedule of provisions on the Canadian roads, one member of the crew may book for rest, while the other members, if there are three trainmen and two enginemen—while the other four men would be under continuous pay, the time for which payment would run as to the engineer would be shown in this particular exhibit?

Mr. Keefe: If those are the conditions, yes.

Mr. Sheean: There has been no effort to analyze or make any distinction on that exhibit, simply to show the compensated time?

Mr. Keefe: Yes.

Mr. Stone: May I ask a question, please?

Mr. Sheean: Surely.

Mr. Stone: Have you any specific case, or are you dealing with generalities now?

Mr. Keefe: I am answering a hypothetical question, if you please. He said "If" such a condition applied.

Mr. Stone: Well, reading the rule and interpretation of it, is it not a fact that it is a company rule, pure and simple, and not the men's rule?

Mr. Keefe: That is a rule contained in the agreement between the Canadian Northern Railway Company and its locomotive engineers.

Mr. Stone: And is it a fact it is all in favor of the company and not in favor of the men?

Mr. Keefe: I would construe the rule to be absolutely in favor of the men, and not the company.

Mr. Stone: It does not say they "shall" tie up. It says they "may." Who is to give the permission whether or not they may?

Mr. Keefe: It says positively the "engineers to be the judge of their condition."

Mr. Stone: But it does not say whether the engineer is to be the judge of whether he ties up or not. It also says, if they cut out his work they can run him through, and it says he may, upon request, tie up. There is a heap of difference between may and shall.

Mr. Sheean: Yes, it leaves it to the men.

Mr. Stone: No. It leaves it to the man in charge, who is on duty at the time.

Mr. Sheean: Read the rule again, will you please, Mr. Keefe? Let us get it clearly in the record as to what the rule is.

Mr. Keefe: "Trains may be laid up between terminals for engineers to obtain rest, after they have been 15 hours on duty, upon advice to train despatcher, but if despatcher will cut out all way work and switching trains may be taken through to terminals. Engineers to be judge of their own condition."

Mr. Stone: But the train despatcher says whether the train goes through to the terminal or not?

Mr. Keefe: That is not the interpretation that I would put upon this schedule if it was run on our road.

Mr. Stone: Doesn't it say, if he will cut out the work, that he shall go through?

Mr. Keefe: No, "may."

Mr. Stone: May go through?

Mr. Keefe: Yes.

Mr. Stone: And he may make them, and he may not.

Mr. Keefe: The engineers to be the judge of their own condition.

Mr. Stone: And back of it all stands the quiet coercion, that you had better keep working if the despatcher thinks you had better?

Mr. Keefe: I don't know of any such coercion in any company that I have anything to do with.

Mr. Stone: Well, it is a fact just the same, and any of us who have been in railroad service know it, that a man who is always sticking up for his rights and who insists on everything the schedule gives him, soon becomes an objectionable man.

Mr. Park: It would be necessary for the despatcher to have his tie-up, in order to clear the railroad, wouldn't it? He would have to know that the train was going on the side track and was off the main track, so he could move other trains by that station.

Mr. Keefe: It would not be proper operation to tie up without notice being given to the despatcher.

Mr. Park: So he must give the despatcher a tie-up?

Mr. Keefe: Yes.

Mr. Park: Otherwise, his train, figuratively speaking, would be on the main track.

Mr. Sheean: You said you had not carefully looked at this schedule as to whether a railroad company could tie an engineer up between the terminals. I wish you would read Article 2.

Mr. Keefe: "Article 2. Engineers cannot be tied up between terminals, and full time will be paid whether engine is alive or dead, unless engineers are relieved and given transportation to terminal and deadhead mileage paid. Full time will be paid until deadheading starts."

Mr. Sheean: So that any tie-up between terminals, as provided for in this schedule, reading Article 2, and the other article, is the tie-up which the engineers determine upon and is permitted on the part of the company, between terminals.

Mr. Keefe: I would understand this, that the company would have no right to tie up engineers between terminals.

Mr. Stone: And I am to understand by that, that on this particular railroad you want to read into the record that engineers do as they please?

Mr. Keefe: I am not attempting to read that into the record at all, Mr. Stone. I am just reading what the language of the schedule is and was asked my opinion of what would be the interpretation that would be placed on it.

Mr. Stone: And you place the Santa Fe interpretation on it?

Mr. Keefe: I am placing my own and not the Santa Fe's.

Mr. Burgess: Mr. Keefe, do I understand now from reading that rule, that the engineers on the Canadian Northern receive compensation when they tie up on account of long hours on duty?

Mr. Keefe: I do not interpret it that way.

Mr. Park: Well, they would if the fireman tied up, and the engineer refused to tie up, the engineer's pay would go on, wouldn't it?

Mr. Keefe: I probably should have asked Mr. Burgess if the engineer tied up of his own accord. If the engineer tied up for rest of his own accord I would not understand that the engineer would be paid for that time.

Mr. Burgess: But all the members of the crew would?

Mr. Keefe: I would have to read the other articles of the schedule to determine that, but if any other member of the crew would tie up and the engineer did not tie up, I would figure the engineer would be entitled to compensation.

Mr. Burgess: Then I misunderstood the reading.

Mr. Sheean: Now, Mr. Keefe, a similar compilation has been made for the firemen?

Mr. Keefe: Yes.

Mr. Sheean: Divided in the same way?

Mr. Keefe: Yes.

Mr. Sheean: That is Exhibit 27. Will you bring us, that, please?

It is so near the adjournment time, Mr. Keefe, let me suggest this: You have these summarized now?

Mr. Keefe: Yes.

Mr. Sheean: Just so I may introduce these and give the opposite side a chance to look over the exhibits as to firemen, and also the summaries, will you bring the other exhibits, the hostlers, separate, and then the summaries?

Mr. Keefe: Exhibit 29.

Mr. Sheean: Now, Mr. Keefe, Exhibit 27 is the classification of firemen, having to subdivide them into a greater number of classes, because of the greater diversity of duties in which they worked during that month.

Mr. Keefe: No, the same classification. They have the same classification as the engineers.

Mr. Sheean: But wherever the preponderance was as firemen, in the same general manner as the classification as to engineers, you show, in Exhibit 27, the different combinations of service in which the firemen were engaged?

Mr. Keefe: Yes.

Mr. Sheean: Exhibit 28 shows that information as to hostlers?

Mr. Keefe: It shows as to motormen first; motormen, and then also for hostlers; and also a list of men who are not available for duty the entire month, and a list of extra men who made less than the amount of money specified, viz., $100 for engineers, $70 for road firemen, and $65 for yard firemen and hostlers.

Mr. Sheean: And then in what manner have you summarized this information shown in these exhibits?

Mr. Keefe: In Exhibit No. 29, consisting of four sheets, we have shown a summary of Sheet No. 1, considering every man who worked, regardless of the length of time, whether it was one day, a half a day, or a full month, showing what was the total number of men, the total number of days, total number of hours, total wages, and the average number of days per month, average number of hours per day they were out, earnings per hour, per day and per month. That is shown on Sheet No. 1.

Mr. Sheean: Sheet No. 2?

Mr. Keefe: Sheet No. 2 is the same information, excepting that we have excluded from those averages the men who were available for duty the entire month.

Mr. Sheean: But, treating as available the entire month for the purpose of that average, all these men above $100 as engineers and above $70 as firemen, about whom you made no inquiry, and even no report, showed that they worked 15, 10 or any number of days?

Mr. Keefe: Yes.

Mr. Sheean: Then what further summary is made?

Mr. Keefe: Sheet No. 3 is excluding those three classes of men, and also excluding the certain extra men who made less money than that specified, the $100, the $70, and the $65.

Mr. Sheean: And then have you summarized that in still another manner?

Mr. Keefe: No, that is the last summary.

Mr. Sheean: Then have you classified them or grouped them?

Mr. Keefe: Yes, on Sheet No. 4 it shows the number of men that earned compensation at certain steps, based upon $100 per month. That is, we show the number of men who earned from $100 to $108 per month; then from $108 to $116 per month; all the way up, step by step, to the last step of $358 to $366 per month. We show the number of men that drew that range of salary.

Mr. Sheean: And the total number of employes in service?

Mr. Keefe: Yes.

Mr. Sheean: That comparison is made for both engineers and firemen?

Mr. Keefe: Engineers, firemen, motormen and hostlers.

Mr. Sheean: And that completes the comparisons or summaries of which these large books are the base?

Mr. Keefe: Yes.

Mr. Sheean: And of which in turn the books over there, or the transcripts of the payrolls, are the base?

Mr. Keefe: Yes, that is the base from which we prepared the exhibits.

Mr. Sheean: Being the one month of October, 1913?

Mr. Keefe: Yes.

Mr. Sheean: Now, we offer these exhibits, 27, 28 and 29. 29 consisting of four sheets.

Mr. Stone: That computing data that you file up there—those are transcripts of payrolls?

Mr. Sheean: Assembled in this manner. You understand that, under the instructions here, a man might appear in two or three different places in the payroll, and the request, as shown in the form this morning, was that that man be brought into the passenger service or into the through service; those are the details.

Mr. Stone: That is a correct copy of the payroll. It is not the payrolls themselves?

Mr. Sheean: It is not in the exact order of the payroll, as I understand it. That is, the payroll would be kept by the division if a man appeared in two or three places on the payroll, but it is certified as being a transcript of the payroll.

Mr. Keefe: And it agrees with the total amount of the payroll for that month. There has been a certification received that it agrees with the payroll and agrees exactly with the amount of the payroll.

The Chairman: But it is not your purpose to offer that?

Mr. Sheean: We are leaving that for the purpose of any check or verification, in the same manner as any other data up there.

The Chairman: Would it suit your convenience to keep it in your room so we can get it when needed?

Mr. Sheean: Or if Mr. Carter wants it in his room, or Mr. Stone.

The Chairman: Just so it is convenient to those who desire it.

Mr. Sheean: Yes, and I don't think we would want to cumber the record permanently by filing it.

The Chairman: We have so much in our room I thought I would suggest if you could leave it in some other room.

Mr. Sheean: These exhibits now complete the analysis of these different tables and exhibits, the ones that are now offered?

Mr. Keefe: Yes.

(The documents, so offered and identified, were received in evidence and thereupon marked "Railroads' Exhibits Nos. 27, 28 and 29," respectively, "January 29, 1915.")

The Chairman: We will adjourn until Monday at 10 o'clock.

(Whereupon, at 5 o'clock p. m. on the 29th day of January, 1915, an adjournment was taken until Monday, February 1, 1915, at 10 o'clock a. m.)

IN THE MATTER OF THE
ARBITRATION
between the
WESTERN RAILWAYS
and
BROTHERHOOD OF LOCOMOTIVE ENGINEERS
and
BROTHERHOOD OF LOCOMOTIVE FIREMEN AND ENGINEMEN
under the Act approved July 15, 1913, *by agreement dated August* 3, 1914.

Chicago, Illinois, February 1, 1915.

Met pursuant to adjournment at 10:10 A. M.
Present: Arbitrators and parties as before.

J. H. KEEFE was recalled for further examination, and having been previously sworn, testified as follows:

Mr. Sheean: Mr. Keefe, before taking up these summaries, I wish you would run rapidly through this Exhibit 27, showing the detail of the firemen. Not taking it up as carefully as we did the engineers, but simply, in a general way, as to the divisions into classes of service, and in a general way what the earnings of the men there are.

Mr. Keefe: The same classification of firemen as was made of engineers appears on this Exhibit 27. The first classification, No. 17, being that of firemen working entirely in passenger service, and it shows the compensation received by firemen in that class of service. Generally the figures show earnings around $140, $150 and $160, up to as high as $209.89, shown on page 716. Fireman A. Richardson, on the railroad that I am connected with, the Gulf, Colorado & Santa Fe Railroad Company, earned $209.89 as a fireman in that month.

There were also other firemen in the same—

The Chairman: Are you able to say as to whether or not we should consider that as representing his average wage during the year?

Mr. Keefe: In passenger service, and all other service, it approximates what his wage would be if he had stayed on his run the entire year.

The Chairman What kind of service was he engaged in?

Mr. Keefe: Passenger service; fireman in passenger service.

The Chairman: It is reasonable to assume that that service then would be about the same through the year, is it not?

Mr. Keefe: Yes, sir, if they had remained at their assignment.

There was another fireman in the service made $198.75 for 25 days work, 7.6 hours a day.

Mr. Shea: Well, Mr. Keefe, was this his regular assignment?

Mr. Keefe: Yes, I understand he was in that passenger service between Cleburne and Bellville on his regular assignment.

Mr. Shea: He worked 30 days—

Mr. Keefe: He worked 25 days.

Mr. Burgess: Do they all average that, Mr. Keefe?

Mr. Keefe: There was another man made 25 days, not quite as many miles, 47 miles less, and he made $198.75.

Mr. Burgess: Glancing over both of these columns, I see many of them, $100, $124, $86, $117, $116. Why don't they earn $200 like this man?

Mr. Keefe: On his assignment—of course, the men you have referred to have not got as good a run as the one Mr. Richardson is on. Now, you mentioned $187.50.

Mr. Burgess: I mentioned $117.

Mr. Keefe: He worked 22 days from Cleburne to Purcell, made 4,400 miles, an average of 8 hours a day, for which he got $117.60. Now, his run undoubtedly had a smaller engine than the one that Mr. Richardson had, or the one that Mr. Clark had, who earned $187.50.

Mr. Burgess: Do you want the Board to understand this, that it is possible for a fireman to average more than 4,400 miles per month, firing an engine?

Mr. Keefe: On certain runs, yes, it is possible. I mean in a general way. I did not intend to say that all trains in passenger runs average 4,500 miles or more, per month.

Mr. Burgess: Do 50 per cent of them average that?

Mr. Keefe: I do not know, Mr. Burgess.

Mr. Burgess: What would be your conclusion, just glancing at these columns.

Mr. Keefe: When we get to our next exhibit, No. 31, which will show the assignments, if you will permit me, I will just wait until then to answer your question. They will show a little bit more clear, instead of guessing at it.

Mr. Burgess: Certainly, Mr. Keefe.

Mr. Park: This shows the actual payrolls for the month of October, 1913?

Mr. Keefe: Yes.

Mr. Park: And is here for any conclusion that may be drawn from it.

Mr. Keefe: Yes, sir, this represents the pay that the men actually received in the month of October, 1913.

Mr. Byram: Do you understand that these men who earned those high rates of pay, $198, $200 and $187.50, would, if these demands were granted, get an increase in pay?

Mr. Keefe: Oh, yes.

Mr. Byram: They would get more than they actually earned in October.

Mr. Keefe: Yes, sir, considerably more.

Mr. Shea: I was just going to ask, Mr. Keefe, if that was your main line, between Cleburne and Bellville.

Mr. Keefe: Yes, sir, that is our main line.

Mr. Burgess: The thought that prompted the questions that this arbitrator asked Mr. Keefe, was due to the fact that Friday, in answer to a question by counsel, you said that if an engineer had continued to work for the thirty-one days, he would receive three hundred and some odd dollars. The calculation for that particular engineer showed that it would be necessary for him to run 7,000 miles, in order to obtain that. You are not prepared to state that it is possible for any engineer to run 7,000 miles in passenger service, at an average speed of forty miles per hour, and continue to do that for twelve months, are you?

Mr. Keefe: It would be very unusual for anything of that kind to occur.

Mr. Burgess: Very unusual?

Mr. Keefe: Yes.

Mr. Burgess: I just wanted to know if these calculations were based on the same theory.

Mr. Keefe: These calculations are not based upon any theory at all, Mr. Burgess. They are the actual results of the operation for the month of October, 1913. There are no calculations in connection with it. They are a transcript of what the payroll actually showed these men earned, and their hours and miles that they made. In connection with your last question, I did not recall Mr. Shea's question—

Mr. Burgess: Mr. Sheean's.

Mr. Keefe: Mr. Sheean's question of that character, definitely.

Mr. Burgess: It is in the minutes. I did not quote it verbatim, but that is the gist of it.

Mr. Keefe: I did not recall the question.

Mr. Park: There was an actual case where an engineer ran 6,000 miles.

Mr. Keefe: Yes, on the M. K. & T. Railroad. Those were the actual miles that he made.

Mr. Burgess: One month.

Mr. Keefe: One month, yes, the month of October.

Mr. Park: These high rates which, of course, show a maximum, are enjoyed by firemen who have seniority and have the preferred runs?

Mr. Keefe: Yes, sir.

Mr. Park: And the pay is graduated, to some extent, by reason of seniority, as shown on these exhibits?

Mr. Keefe: Yes, sir.

Mr. Sheean: Mr. Keefe, the next part of this exhibit shows the firemen working entirely in suburban service?

Mr. Keefe: Yes, sir.

Mr. Sheean: And, in a general way, what is the showing as to that?

Mr. Keefe: It shows that firemen are receiving in suburban service, $100, $115 to $125 a month, going up as high as $158.

Mr. Park: What page is that?

Mr. Keefe: 764.

Mr. Sheean: It is the marginal clip 18, and the details of

what the runs are and where they are and what the earnings are, are shown from 764 down to 766.

Mr. Keefe: Yes, sir. Section No. 19 is the firemen working partially in passenger service and partly in other service, the greater portion of the wages being derived from passenger service. It shows the earnings received by firemen in that class of service, ranging from $110 to $120, $130, $140, and over.

Mr. Sheean: When you speak of ranging in those amounts, those are the men who earned the largest sums and who worked the greater number of days in the month?

Mr. Keefe: Yes, who put in a reasonably full month's work. Those are not the maximum figures, of course, because there were others who earned $170 and $180, that I did not mention.

Mr. Sheean: Then Section 20 shows that, Mr. Keefe?

Mr. Keefe: It shows the firemen who worked part of the month as engineers, hostlers or motormen, whose earnings as firemen were greater than their wages as engineer, hostler or motorman, and the greater portion of their wages as fireman being derived from passenger service.

Mr. Sheean: You showed in the engineers' exhibit this intermingled service, but where the greater percentage of the earnings during the month was as engineer then they were carried into the engineers' exhibit?

Mr. Keefe: Yes, sir; by reason of the fact that there are some engineers' salaries in this calculation, but the majority of their wages or earnings are higher than they are in the preceding question. They run around $165 to $175 and $190; but the greater part of their wages were earned as firemen, and the greater part of those wages were in passenger service.

Mr. Sheean: Then Section 21, beginning at page 878, shows the firemen who worked entire in through or irregular freight service, having no earnings in any other class of service during the month?

Mr. Keefe: Yes, sir.

Mr. Sheean: In a general way, what is shown by that section of the exhibit?

Mr. Keefe: It shows a large number of them earning over $100 a month and ranging around $145 a month, and on sheet 882, there are a number of them getting over $200 a month;

also on sheet 883, there are $190 and $200 for firemen in through freight service.

Mr. Byram: Do those men have their pay increased?

Mr. Keefe: Yes, they come in for some of the very large increases which are asked for by other classes of men.

Mr. Byram: So that if the requests here were granted, these men who now earn $180 and $190, in this service, would receive a great deal more than that?

Mr. Keefe: Yes.

Mr. Sheean: Then the next section of the exhibit, Mr. Keefe, takes up firemen working partly in through or irregular freight service and partly in other service: but the greater portion of their wages earned in through or irregular service?

Mr. Keefe: Yes, sir.

Mr. Sheean: This Section 22 shows what, in a general way?

Mr. Keefe: It is not uncommon for firemen in that class of service to receive upwards of $150 a month, in some cases going as high as $190, $170, $180 and $160.

Mr. Sheean: And this portion of the exhibit running from page 922 to 1223 shows that a great many firemen worked part of the month in through or irregular service, earning the greater part of their earnings in that service, but during the month caught certain runs in other service as well?

Mr. Keefe: Yes.

Mr. Park: Are these high rates peculiar to any particular locality or railroad, or are they general?

Mr. Keefe: No, they seem to be general throughout the book, not confined to any particular railroads.

Mr. Sheean: Anything particularly as to this large part of the exhibit here, where the majority of earnings were in through or irregular freight service, to which you wish to direct attention?

Mr. Keefe: No. It is understood, of course, these only show the earnings as firemen. It applies to firemen exclusively in the various classes of service, the greater wages being received from through freight service. There are no engineers' wages shown in this particular section.

Mr. Sheean: Then the next section of Exhibit 23 shows the firemen working part of the month as engineers, hostlers

or motormen, but whose wages as firemen were greater than their wages as engineers, hostlers or motormen, and the greater portion of the wages as firemen in through or irregular service?

Mr. Keefe: Yes.

Mr. Sheean: In a general way, what does that show?

Mr. Keefe: That shows about the same as the previous exhibit. In some cases, by reason of their combination, they are as high as $228. That is the highest wages. But it runs generally $140, $150, $160.

Mr. Park: I see, Mr. Keefe, in glancing over the first three or four sheets, that there seem to be very few laying off. That is, as you have the record, under $100. Is that any indication that the men stick pretty closely to these runs?

Mr. Keefe: Well, the number of days work is more of an index as to how they stick to their runs. There is no explanation given, because each man shown on these sheets, or practically every man, earned greater wages than the limit which we set for seeking explanation as to why they did not earn more. We do not want the impression created that because there is no explanation given of why they laid off, that they did not actually lay off, but wherever their wages as firemen were greater than $70, we made no inquiry as to whether or not the men actually laid off, and it is possible—and it is a fact, that some of these men also laid off, but we have made no explanation of it.

Mr. Sheean: So that on page 1225, Mr. Keefe, this being the first part of this exhibit, there appears nothing in the "remarks" column, because on all of those men shown there, no inquiry was made as to whether any of them laid off, or why they laid off, if at all?

Mr. Keefe: That is correct, although some of them may have worked only as little as sixteen days, fifteen days, sixteen days.

Mr. Sheean: All of the men on that sheet having earned during the month more than $70, no inquiry was made as to time laid off or cause of laying off?

Mr. Keefe: That is correct.

The Chairman: In your preparation of these exhibits, did you ascertain as to whether or not there were any roads, parties to this Arbitration, wherein the standard as indicated in these tables was not maintained?

Mr. Keefe: Their actual earnings were not as great as shown in here.

Mr. Sheean: Why?

Mr. Keefe: Why, because some of the smaller roads do not show as high earnings as some of the larger roads. There is a difference in the earnings received by men on some of the railroads. On some of the smaller lines the men do receive less wages than those on others. I had in mind roads like the Louisiana & Arkansas and the Texas & Gulf as ones which show less wages than the average here.

In connection with the Texas & Gulf I mention that, however, since the 1st of July, this fiscal year, they are receiving the same standard of wages that are paid by the G. C. & S. F. men, but prior to the 1st of July this year they received a standard of their own which was some considerably less than what the men received on neighboring railroads, and the wages shown in October for that particular railroad are less than what they received on the Gulf, Colorado & Santa Fe and standard roads, and that is true of some of the smaller lines also.

Mr. Park: Mr. Keefe, are all of the roads parties to this arbitration shown in this exhibit?

Mr. Keefe: Every one is shown, with the exception of a few smaller roads which did not furnish us any data at all, and which I explained in giving our estimate of the increases as shown on Exhibit No. 3. But outside of those four or five small roads we have received data from all of the other roads, and it is shown by this exhibit, as in all the balance of our exhibits.

Mr. Sheean: Section 24, Mr. Keefe, shows the firemen who worked—

Mr. Keefe: Just a moment. You understand, Mr. Chairman, we showed the wages actually paid by all the roads that we received the data from, whether it was small or large. Every railroad that we got the earnings from in October, would show in this exhibit.

The Chairman: I understand that, but I presumed that in making this investigation, you perhaps observed if there were any discrepancies as to the amount of wages paid by various railroads.

Mr. Keefe: Yes, some of the larger roads have different figures, due entirely to their local conditions and their local as-

signments. There would be a variation, even on the same road, because of peculiar runs and peculiar operating conditions.

Mr. Park: The roads that you referred to in Louisiana, are evoluting from tap lines, and industrial roads and logging roads, being gradually brought into a railroad system. Have you made any investigation as to those?

Mr. Keefe: No.

Mr. Shea: Now, Mr. Keefe, I just notice on page 1,232, are quite a number of the men reported off duty own accord. Now, as an example, take H. G. Hintz, Lake Shore Division of the Chicago & North Western Railway.

Mr. Keefe: Yes, sir.

Mr. Shea: He earned $55.11 and worked—

Mr. Keefe: 12 days.

Mr. Shea: Now, do we understand from that that he laid off 19 days of his own accord?

Mr. Keefe: He could have worked more, if he had been on duty. I have not attempted to ascertain the precise number of days in each one of these cases, where the men laid off of their own accord. A number of the roads gave that information; some of them didn't, Mr. Shea.

Mr. Shea: Well, from the record it would appear that he worked 12 days?

Mr. Keefe: Yes, sir.

Mr. Shea: And laid off of his own accord 19 days. Now, is that a fact?

Mr. Keefe: The record does not show he laid off 19 days. It shows that he worked 12 days and he was off duty of his own accord, also, during that month.

Mr. Shea: Does not show how many days?

Mr. Keefe: As to how many days.

Mr. Shea: It is possible he asked to be off three days and 16 days he was waiting to be called, does it not?

Mr. Keefe: It is not improbable that a case of that kind would occur, Mr. Shea.

Mr. Shea: This does not show that all the days he did not work, that he was not ready and prepared for duty.

Mr. Keefe: No, but it does show that during the month there was part of the time when he did not remain at work, of his own accord.

Mr. Shea: Yes, I understand. How much of it?

Mr. Keefe: I do not know in each particular case, Mr. Shea.

Mr. Shea: Is there any way of ascertaining just how many days he did really ask to be relieved, and how many days he was ready to respond to a call?

Mr. Keefe: I do not know right at this particular date, whether that every fact of that character could be ascertained, for every one of these men or not.

Mr. Shea: Well, assuming it was a fact, would not that change the entire aspect of your exhibit, so far as their wages are concerned?

Mr. Keefe: No, sir, because these are the wages that they received, and it would not change the aspect of the exhibit, one iota, because it shows here what they actually earned for the days in which they were employed.

Mr. Shea: I may put it another way. Insofar as it would pertain to being off duty, on account of their own accord?

Mr. Keefe: I cannot see where it would change the aspect of the exhibit in that regard, at all, Mr. Shea.

Mr. Shea: Now, Mr. Keefe, take this man Hintz. He worked 11 days—or 12 days: There are 31 days in the month of October. According to your record it would appear that he laid off 19 days of his own accord. Well, now, supposing he only asked to be off for 3 days and the other 16 days he was ready to respond to a call. Would not that change the aspect of your exhibit, so far as a man being off duty on account of his own accord is concerned?

Mr. Keefe: If he had worked 3 more days, or 4 more days, it would not have shown any excuse at all for him being off duty, because his earnings then would have been more than his $70, Mr. Shea.

Mr. Shea: Mr. Keefe, that is not my question.

Mr. Keefe: Will you read the question, please?

(Question read as above recorded.)

Mr. Keefe: This exhibit does not show that the man had been off duty 19 days, nor is it desired to have it inferred that he was off duty every day that he did not work.

Mr. Shea: But, according to the exhibit, it does show that

he was off 19 days of his own accord, when, in reality, he might be ready to respond to a call 16 days out of those 19?

Mr. Keefe: No, the record shows that he worked 12 days, for which he drew $55.11, and the reason he did not earn more money than that was because he was off duty of his own accord.

Mr. Shea: But the record implies that he was off 19 days, of his own accord?

Mr. Keefe: If you wish to put that implication on it, Mr. Shea, I cannot prevent you from doing so.

Mr. Shea: Does it not imply that he was off 19 days? He worked only 11 and there are 31 days in the month, and you say the remainder of the time, according to the record, "Off duty own accord." Now, that implies that he was really off 19 days?

Mr. Keefe: I think, Mr. Shea, the exhibit shows for itself, but it shows it was not the intent to say he was off duty the 19 days. The statement does not show that. It shows that there was a part of the time during that month that he was off duty of his own accord.

Mr. Shea: Then, Mr. Keefe, how can we ascertain that fact?

Mr. Keefe: By making inquiry in each case that you desire inquiry made.

Mr. Shea: Very well.

Mr. Sheean: In the case of the Chicago & North Western, to which attention has been called here, this Mr. Hintz, do you happen to remember whether, in the North Western schedule, there is a guarantee of 2,600 miles, if he was available, so he must have been off duty on that road, that particular man.

Mr. Keefe: I would not want to qualify on that. I had a recollection that there is some provision of that character in their schedule, but just what it is, I am not familiar.

Mr. Stone: I do not want to interrupt the witness, but I should like to ask Mr. Keefe, if I may be allowed, a question right there.

Mr. Sheean: Surely.

Mr. Stone: Do you understand that where that guarantee is made, that the company always carries it out; where there is a guarantee of 2,600 miles, that a man can make it in freight service, that they always carry it out?

Mr. Keefe: It is my understanding so, yes, sir, Mr. Stone. I have not anything to make me say otherwise.

Mr. Stone: So, regardless of the business conditions of the road, he is always guaranteed that?

Mr. Keefe: Wherever he is guaranteed that much, I understand they always carry it out.

Mr. Stone: They pay him that much, whether he makes it or not?

Mr. Keefe: That is my understanding of the articles. I do not work under such an agreement myself, Mr. Stone, and I am only talking as to what I understand they would do.

Mr. Phillips: If I may ask a question, I would like to have that cleared up, because it is a new thought to me. Do you understand, Mr. Keefe, that any of these schedules, like the 2,600 miles referred to, apply to a man in this irregular, intermittent service?

Mr. Keefe: It depends entirely upon the phraseology of the agreement, Mr. Phillips.

Mr. Phillips: Do you know of any agreement that carries any such guarantee for engineers and firemen in this irregular service?

Mr. Keefe: This is assigned service, I presume, because he shows in way freight, and I know way freight is usually assigned service.

Mr. Phillips: Take the first man on the Lake Shore Division, Carlton, or Hintz, either one, but a man who is in freight, unclassified service, passenger service, yard service, or despatcher, in a period of twelve, fifteen or eighteen days, would you fancy he was an assigned man in those services?

Mr. Keefe: It is possible he may be.

Mr. Phillips: But it is not probable, is it, Mr. Keefe?

Mr. Keefe: It is probable, yes. I do not say that it is.

Mr. Phillips: Is it not a most unusual thing?

Mr. Keefe: Well, I do not know whether it would be unusual or not.

Mr. Phillips: Now, as a matter of fact, this 2,600 mile guarantee, does not that apply ordinarily to some helper job, or a work train, or branch mixed train service, where it would affect, perhaps, one crew, and is not a general proposition in any schedule for engineers and firemen?

Mr. Keefe: Different schedules provide for different provisions, and they have been tabulated here and show in Exhibit No. 1.

Mr. Phillips: Pardon me. I did not want to get into cross-examination, but I wanted to bring it out, because it is an entirely new idea, to me, and if I may, if it is proper, I would like to ask Mr. Keefe to show, if he can, without too much trouble, and even refer to the schedule introduced, showing that in through or irregular freight, or any other kind of freight service, except perhaps in branch line or mixed service, there are any rules guaranteeing engineers and firemen 2,600 miles per month?

Mr. Keefe: May I have until after lunch to look that up?

Mr. Phillips: Yes, as much time as you want, because I know of guarantees, but they usually apply to only very few men and in exceptional cases under specified conditions, and I take it, that these were men in various services who remain on the list subject to call for any service for which they may be required, as the nature of the work here shows. And, right along the line Mr. Shea was inquiring, it seems to me a man might, and I think on all railroads does, remain on the list subject to call for the full month, and perhaps only worked the number of days shown here, because he had to wait his turn for service. This is all intermittent service, I think.

Mr. Keefe: If he was awaiting service, Mr. Phillips, we would not show he was off duty of his own accord. That explanation is not given where men are waiting for their call or waiting for their assignment.

Mr. Phillips: I think Mr. Shea's thought was another thought. He wished to determine the length of time he was off of his own accord. This would indicate he was off some time of his own accord?

Mr. Keefe: Yes.

Mr. Phillips: But, in a general way, I would say it would not be uncommon for a man to be on duty and subject to call and lose two or three days awaiting a call. That was all. I started to find out about the guarantees of 2,600 miles.

Mr. Park: Mr. Keefe, would this indicate that there was an opportunity for these men, after returning from their requested leaves of absence there would have been an opportunity

for them to have earned more money, where they are shown to have earned less than $100, if they laid off of their own accord for five or six days. The opportunity was there for them to have earned more money?

Mr. Keefe: Yes.

Mr. Park: And the seniority rules apply in a general way to this as well as in other service?

Mr. Keefe: Yes.

Mr. Sheean: Some of the roads have made report of the particular dates and time laid off?

Mr. Keefe: Yes.

Mr. Sheean: Generally speaking, they show the number of days laid off, but a few of the roads (The North Western among those) simply show when a man was off duty of his own accord, simply made that notation?

Mr. Byram: Mr. Keefe, in this discussion, this discussion —applies only to those firemen who earn less than $70?

Mr. Keefe: In road service, and $65 in yard service.

Mr. Byram: Then, any man who earned over those amounts, although he may have laid off some part of the time, there was no account taken of it?

Mr. Keefe: That is correct.

Mr. Sheean: So that, if I understand you right, it was expected that as to those fluctuations one side would offset the other?

Mr. Keefe: Well, of course, wherever they earned more than $70 or the amount stated, it is possible, and probable that they did lay off also, but there was no request asked for it, and no notation made. They were considered as having been available for duty the entire month. Whenever a man made less than that amount of money, if he did not exercise his right or opportunity to earn more wages, we simply showed the fact that he did lay off of his own accord, and in some cases the certain specified number of days, and in other cases no specified number, but that there was an opportunity for him to earn wages if he cared to exercise it.

Mr. Sheean: And above $70 here, in road firemen, so far as any tabulation is made, you treated that man as available during the entire month, and even though the record showed he worked 15 days, nevertheless, in any comparison or summary,

that particular man, if above $70, was treated as being available the entire month?

Mr. Keefe: Yes.

Mr. Park: But, as a matter of fact, it might be possible that he was not available, that he might have laid off of his own accord, and bringing the general average of pay higher than is shown here?

Mr. Keefe: Yes.

Mr. Sheean: The next section of the Exhibit, 24, takes firemen working entirely in local or way freight service?

Mr. Keefe: Yes.

Mr. Sheean: And in a general way shows what?

Mr. Keefe: Shows the wages that are earned in this branch of service, and for those that work a reasonable number of days in the month their earnings fluctuate from $130 to as high as $170 or $180, in some cases over $200, as I recall it.

Mr. Byram: On that first sheet, Mr. Keefe, 1266, I see that road gives the time they were off?

Mr. Keefe: Yes.

Mr. Byram: In this case of Fireman C. A. Reynolds, on the Florence and Ellinwood run, he worked 12 days and earned $45.31, and laid off from the 1st to the 17th of his own accord?

Mr. Keefe: Yes.

Mr. Sheean: That was the information that Mr. Shea was asking for.

Mr. Keefe: Yes, some roads in giving that information went to that much detail, while other roads did not, and this road that is shown on this page, gave, I think in every instance, the dates that the men actually laid off.

Mr. Byram: Following that same page down, J. Ward, on the Wichita and Pratt run, just a little further down the page, seems to have worked 21 days, and earned $67.17, and laid off from the 25th to the 31st. All the roads did not give that information.

Mr. Keefe: All the roads did not go into that detail.

Mr. Byram: Are there many of them, so that we could get an idea about that? Or is the Santa Fe about the only one?

Mr. Keefe: No, there are a number of others. The Missouri Pacific showed it in detail, as I recall it, and the Southern

Pacific showed it in detail, and quite a number of them. I think there are more that gave the detail than those that did not.

Mr. Byram: It just happens that the North Western, in the particular case you are speaking about, did give the information?

Mr. Keefe: Yes.

Mr. Park: Did your request on the roads require them to go into that detail specifically?

Mr. Keefe: No, the instructions, as shown in Exhibit No. 25 were to give it in the most general way. Then we afterwards tried to get it for additional amounts, but the instructions shown on the bottom of Exhibit 25, said "where the total wages of any man is less than $50 for the month of October, a notation shall be made in the Remarks column explaining briefly the reason, for instance, 'Extra man,' 'left service the 8th,' or similar conditions, whatever the facts may be in connection with payments of less than $50 during the month of October, 1913." Those amounts were raised to $100, $70, and $65, respectively.

Mr. Park: Then you left that to the discretion and the judgment of the railroads as to what they should furnish, realizing that it would be rather difficult to accumulate detail as to just what occurred?

Mr. Keefe: Yes.

Mr. Park: In that connection.

Mr. Keefe: Yes.

Mr. Byram: Then, Mr. Keefe, answering Mr. Shea's inquiry, as to how this Board is going to get the information as to how much of the time these men were not available for service, did I understand you correctly that we would have to go back and canvass all these roads to get the information?

Mr. Keefe: If we desired in every case to show the number of men who laid off of their own accord, and we wanted to know the number of days they actually laid off, there is no other way.

Mr. Byram: But I understood you to say that many of the roads gave that information?

Mr. Keefe: I was confining my remarks to those roads that only furnished the information in that manner, that were laid off of their own accord.

Mr. Byram: Then if we wanted to find out exactly how much time these men were available for service, those who show

time off, we could get it by examining the reports of those roads which did give the information?

Mr. Keefe: Well, it would give you a general idea as to how it would run, and as a general proposition I can see no reason why it should not apply to those roads that did not give it in detail as much as to the roads that did give it in detail.

Mr. Byram: You think, then, if you take the Santa Fe and Rock Island and Missouri Pacific, and other roads, that give that information, that we could get from those roads, from the reports of those roads, we could get a fair review of that situation as it would apply to those roads that did not give it, for instance, the North Western.

Mr. Keefe: As a whole yes. Of course, it would not apply particularly to individuals, to particular individuals or to particular railroads.

Mr. Byram: I am speaking of the roads as a whole and the situation as a whole.

Mr. Keefe: As Mr. Lauck would say, it showed a "general tendency."

Mr. Burgess: I was going to ask you, Mr. Keefe, if we had the fact that a fireman or an engineer laid off on the Santa Fe, what relation that would have to a fireman laying off on the Burlington?

Mr. Keefe: I think my reply to Mr. Byram covers that question, doesn't it, Mr. Burgess?

Mr. Burgess: In a general way.

Mr. Keefe: The explanation given as to why a man laid off on the Santa Fe would not apply to a particular engineer on the Burlington, or any other road but his.

Mr. Byram: I understand this is not a question why he laid off, it is a question as to how much time he did lay off, is it not?

Mr. Keefe: It was an explanation as to why he did not avail himself of all the opportunities to earn that were presented.

Mr. Sheean: The effort, as to all of these primarily being, Mr. Keefe, where the engineer dropped below $100 or a fireman below $70, to find out in that case whether or not that was because there was not work for him or because he did not avail himself of the opportunities there were for work?

Mr. Keefe: That was the sole purpose for which the information was to be shown.

Mr. Sheean: I think you stated, in a general way, what is shown as to firemen working in local or way freight service; 25, generally, shows what?

Mr. Keefe: Shows firemen working partly in local or way freight service and partly in other service; the greater portion of wages being derived from local or way freight service.

Mr. Sheean: And in a general way that shows what?

Mr. Keefe: That shows slightly less earnings than the men engaged entirely in local or way freight service, but it shows variations in all wages, running from $110, $120, to $140, for men who worked a reasonable number of hours in that class of service. Some of the amounts, of course, ran as high as $195, and some $200, and over.

Mr. Park: I notice on page 1270, a case where a fireman received only $8.37, on the Ashland division. That is given as a shop man, an emergency. While his pay was included among the firemen, he was really a shop man, and employed in all probability the balance of the month as a machinist.

Mr. Keefe: Was employed as a shop man in some other vocation. He was used to make two trips in this class of service, in emergency.

Mr. Sheean: Four trips on two days?

Mr. Keefe: Four trips on two days. He made two round trips, apparently.

Mr. Sheean: Section 26 of the Exhibit?

Mr. Keefe: Shows firemen working part of the month as engineers, hostlers or motormen, wages as firemen being greater than wages as engineer, hostler or motorman, and the greater part of wages as firemen being derived from local or way freight service.

Mr. Sheean: That portion of the exhibit, beginning at page 1375, shows what, in a general way?

Mr. Keefe: Why, it shows the earnings of that particular class of employes, and because of some earnings as engineers—it shows a greater increase, greater wages received than those of firemen, engaged in the local or way freight service exclusively, figures running around $140 to $160, and as high as $180 or $190.

Mr. Sheean: That is like a preceding part of the exhibit to which I called your attention, being comparable with an exhibit or a section in the Engineers' Exhibit, in which they are shown as engineers, where the greater part of the wages during the month was as engineer?

Mr. Keefe: Yes, sir.

Mr. Sheean: Now, 27, Mr. Keefe, shows firemen working entirely in yard or switching service?

Mr. Keefe: Yes.

Mr. Sheean: And that shows in a general way, what?

Mr. Keefe: Shows in a general way earnings of firemen in that class of service, ranging from those that worked reasonably full time during the month, from $75 to $85, $95—some as high as $100 and more in that particular class of service.

Mr. Sheean: That part of the exhibit shows the different number of days worked by the firemen, in switching service?

Mr. Keefe: Yes, and the number of hours.

Mr. Sheean: The next section of the exhibit?

Mr. Keefe: Section No. 28 shows firemen working partly in yard or switching service, and partly in other service, the greater portion of their wages being derived from yard or switching service. By reason of their intermingling some road work in connection with the yard duties, the wages are slightly higher than what they were in the exclusive yard service, some of the earnings being in the vicinity of $120, $130, and as high as $150.

Mr. Sheean: Then section 29.

Mr. Keefe: Section 29 is the firemen working part of the month as engineers, hostlers or motormen, wages as fireman being greater than wages as engineer, hostler or motorman, and the greater portion of the wages as fireman being derived from yard or switching service.

Mr. Sheean: That shows what, in a general way?

Mr. Keefe: That shows slightly increased earnings, by reason of the wages as engineer being included in there, and also some road work, which would make the earnings a little greater, or some greater than the yardmen, or the men in exclusive yard service.

Mr. Sheean: Then, Section 30 shows the firemen who

worked exclusively in pusher, helper, construction work, gravel, wreck, belt line and transfer service through the month?

Mr. Keefe: Yes.

Mr. Sheean: Or, rather, those who earned no money in other classes of service during the month, and that, in a general way, shows what?

Mr. Keefe: That shows, in a general way, men earning in those classes of service, in the neighborhood of $130, $140 or $150, and some of them up as high as $193; and on sheet 1561 are a number earning over $200.

Mr. Sheean: What is that, in helper service?

Mr. Keefe: Firemen entirely engaged in pusher, helper, construction work, gravel, wreck, belt line, transfer and other unclassified service.

Mr. Sheean: I was wondering whether that shows it was as pusher, where these very high earnings are.

Mr. Keefe: It shows on sheet 1561, that the first man, earning $214.25, was in work train service. There is another fireman, $154, another $140, in that same class of service; and there is another making—

Mr. Shea: Mr. Keefe, right there, the first man, Mr. McDonald, worked twenty-eight days, 567 hours. Did he work 20.3 hours per day?

Mr. Park: What page is that?

Mr. Keefe: 1561. Not necessarily worked. He was compensated for that number of hours.

Mr. Shea: How is that computed?

Mr. Keefe: This shows the hours for which he was paid.

Mr. Park: May I ask what case that is?

Mr. Keefe: Sheet 1561, the first line, W. R. McDonald, Fireman in work train service at Hume; a total of twenty-eight days, for which he was compensated for 567 hours, for which he received $214.25.

There is a fireman on the Manitoba Division, H. V. Ripley, who was in fireman and helper service, and made $229.98.

Mr. Byram: Would these men have their pay increased, if these requests were granted, these men that get over $200?

Mr. Keefe: Yes.

Mr. Byram: They would still get more than $200, if the same conditions prevailed and these requests were granted?

Mr. Keefe: Yes.

Mr. Park: I see D. E. Little, in work train service, $226. You have no details of any of those?

Mr. Keefe: No, I have only what the payrolls show, and I have not anything as to the actual number of hours he worked. He was compensated for that number of hours.

Mr. Park: Just below that are two wipers, used in emergency service.

Mr. Keefe: Yes.

Mr. Byram: These are not engineers, as I understand; these are firemen.

Mr. Keefe: Firemen.

Mr. Park: So many wipers being used there would indicate that all the firemen were employed.

Mr. Keefe: There were a number of men used in emergency.

Mr. Sheean: Section 31, Mr. Keefe, shows the firemen who worked partly in this unclassified service, and partly in other service, but the greater part of their earnings being derived from this unclassified class?

Mr. Keefe: Yes.

Mr. Sheean: And, in a general way, what does that show?

Mr. Keefe: It shows about the same as those that are entirely in pusher and helper service.

Mr. Sheean: The effort here being to separate the service in which they made their earnings exclusively from service in which part was made in one class and part in another?

Mr. Keefe: Yes.

Mr. Sheean: Section 32, Mr. Keefe, shows what?

Mr. Keefe: Section 32 shows the firemen working part of the month as engineers, hostlers or motormen, but their wages as firemen in this particular unclassified service being greater than their wages as engineers or in any other class of service.

Mr. Sheean: And in a general way, what is shown as to the earnings in that part of the exhibit?

Mr. Keefe: It shows that the earnings vary from $120 to $130 and $140, for those that worked a reasonable period of time in that class of service. Some of them are as high as $162 and $170.

Mr. Sheean: Mr. Stone, would you prefer to cross-examine on this, or that I should run through the hostlers and the summaries as well?

Mr. Stone: It does not matter. You might as well run through the hostlers.

Mr. Sheean: Let us run through the hostlers before we take up the summaries. Will you please, Mr. Keefe, explain the manner of division of the class of service here, as shown?

Mr. Keefe: Sheet No. 1644 is an index as to the classes of service, and just what this volume contains. It contains—it shows that section No. 33 provides for the motorman engaged in various classes of service.

Mr. Sheean: Does that mean those who worked only as motorman during the month?

Mr. Keefe: Yes, sir, and so on down for motormen, motormen's helpers, hostlers, and hustlers, and two extra sections, showing some miscellaneous information.

Mr. Sheean: Now, taking section 33, motormen working in various classes of service, just what is shown, in a general way there?

Mr. Keefe: Why, it shows the wages now received by motormen, working in various classes of service, on such roads as have that class of employes. Commencing at sheet 1646, shows earnings of men there, some of them over $200 and others ranging from $160 to $170 and $180.

Mr. Sheean: And this covers the gasoline motor cars?

Mr. Keefe: Yes, this shows electric; also that of the Great Northern System, Cascade Division, Tye and Cascade tunnel; that electric service in there is also shown.

Mr. Park: That is the $186?

Mr. Keefe: $185.90.

Mr. Park: Is that the territory testified to by Mr. Finn?

Mr. Keefe: Yes, sir; this shows the wages for men that were entirely in that class of service, throughout the month.

Mr. Sheean: Where is the Southern Pacific Motor Car Service then, electric service?

Mr. Keefe: It is shown on sheet 1648.

Mr. Park: What service is that?

Mr. Keefe: Southern Pacific Electric Service, Oak-Alameda-Berkeley.

Mr. Sheean: On sheet 1648?

Mr. Keefe: Yes.

Mr. Sheean: Oh, yes, I thought your exhibit ended on 1647.

Mr. Keefe: No, that is just a blank.

Mr. Sheean: I see. So that where the electric service of the Southern Pacific had employes who made no earnings in anything, other than as motormen, during that month, that is shown at page 1648?

Mr. Keefe: Yes; it shows their earnings as $150 and $160 a month, ranging in that figure there, generally.

Mr. Sheean: Then the next section, 34, shows the motormen working part of the month as engineers, firemen or hostlers, wages as motorman being greater than wages as engineer, fireman, or hostler?

Mr. Keefe: Yes, on that 1651, that first sheet, there are some more of the Tye-Cascade tunnel operators there. You will notice there are three men there that practically had all of their service as motormen, but they made one or two days each as engineers in freight or passenger service, and, therefore, would come under this classification.

Mr. Park: $206.

Mr. Keefe: $206, $191.60 and $204.20. Sheet 1651, Mr. Park.

Mr. Park: Yes, I see it.

Mr. Sheean: The first man worked as motorman thirty days, and one day as an engineer.

Mr. Keefe: Yes.

Mr. Sheean: Then section 35.

Mr. Keefe: There is one man on the Southern Pacific made $284.14, page 1652. Most of his time was as motorman in passenger service, Sacramento Division.

Mr. Sheean: N. S. Youngs?

Mr. Keefe: Yes, sir, the third from the bottom.

Mr. Stone: He was paid steam rates, was he not?

Mr. Keefe: I am not conversant with the rates, Mr. Stone. This shows his actual earnings, and whatever the rates are, they are in effect.

The Chairman: You say engaged in passenger service. Is there anything by which we can ascertain that fact?

Mr. Keefe: Yes.

Mr. Sheean: That is N. S. Youngs, the third name from the bottom, motorman in passenger service for fourteen days, made twenty-nine trips, 1,940 miles, 188 hours, paid $152.69. Then right under N. S. Youngs, engineer in passenger service between Roseville and Sparks. Then just below, engineer in through freight service, the third line under Youngs, for thirteen days, fourteen days as passenger motorman, thirteen days as engineer.

Mr. Keefe: One of which was in passenger service.

The Chairman: You had no difficulty in ascertaining when it was that way?

Mr. Sheean: No, or the points. So with the time and the hours, and as to just what the runs were, the distance on the particular runs could be ascertained. That is, this would do as an index to start a tracer for any run.

Mr. Park: He seems not to have been confined to any particular service, but holds a seniority right, first in passenger, or first as motorman, and when there was no work for him in passenger service, steam service or electric service, he drops back to the highest grade of through freight service, so that he was able to earn $284 during the month.

Mr. Keefe: He ran whatever his seniority rights gave him there, undoubtedly, Mr. Park. I am not familiar with the details as to what made him leave the passenger service and go into the through freight service.

Mr. Park: But it indicates that he was privileged to go into that class of service during the month?

Mr. Keefe: It indicates he had the opportunity and exercised that opportunity to earn that much money.

Mr. Sheean: 35, Mr. Keefe, shows motormen helpers working in various classes of service.

Mr. Keefe: Yes, these are the helpers.

Mr. Sheean: And the motorman helpers during that month, in a general way, are shown to have earned what?

Mr. Keefe: Shows the motormen helpers in that Tye-Cascade tunnel, first men, earned $150; other men $133.35. Those were the only lines that reported any motormen helpers, those that are shown on page 1654.

Mr. Sheean: Then, 36, motormen helpers working part of

the month as firemen or hostlers; wages as motorman helper being greater than wages as fireman or hostler, shows, beginning at page 1,655.

Mr. Park: Just a moment. 1654, I notice that C. L. Fisher only received $48.60, and there is no reason given for his not receiving more.

Mr. Keefe: No, sir, we did not secure any information as to why he only earned $48.60; and, he is therefore included as a man available for duty the entire month.

Mr. Sheean: Sheet 1655, Mr. Keefe.

Mr. Keefe: Yes, it shows the motormen helpers that were engaged in other service, as firemen, in addition to their duties as motormen helpers. The only road which reports that class of employes is the Great Northern, and that applies only to their Cascade tunnel. It shows their earnings $144 down to $105.90.

Mr. Sheean: Now, I note there in the next to the last, there was thirty days as a motorman helper, and one day as a messenger. I wish you would explain what is meant by messenger, Mr. Keefe.

Mr. Keefe: Wherever that expression is used, it generally implies that the fireman was used as a man to accompany an engine going to or from the shops. He was performing messenger service and not fireman's duty or engineer's duty. I think most schedules provide for the stipulation that where engineers or firemen are used for accompanying dead engines, engines going to or from shop, they had a messenger to look after them and see that they run properly.

Mr. Sheean: What I wanted to get at is as to what the railroad term of being a messenger meant to the layman.

Mr. Keefe: The messenger looks after, to see that the engine is properly taken care of during its trips, or that it does not run hot.

Mr. Park: The engine is not under steam, and is not in any way in service. He just simply fills the grease cups and oils the engine, as it may be required?

Mr. Keefe: It is necessary to have some one to accompany the engine, to look after it when it is not under steam, in a train, going to the shop.

Mr. Sheean: That is what is generally known as messenger service?

Mr. Keefe: Yes, sir.

Mr. Sheean: Now, the next section of the exhibit treats of hostlers.

Mr. Park: What number?

Mr. Sheean: 37, page 1657—beginning at page 1658; the index at 1657 as to the different roads. Now, what is shown in this part of the exhibit, what kind or class of hostlers?

Mr. Keefe: It shows men under this section that are engaged exclusively in hostler service, or some roads may consider as despatching service, but it only includes such employes as are carried on the payroll, and are designated by the railroads, as I understand it, as hostlers.

Mr. Sheean: When a roundhouse fireman, in connection with his other duties, does regularly on each day at some time move an engine under steam, is that man shown in this exhibit as a hostler?

Mr. Keefe: I would say not. It would be the rare exception in case he was, for they are designated as something else besides hostlers on the payroll of the company.

Mr. Sheean: Or in cases where men do move engines under steam, in or about the yards, in connection with their other duties that are performed there, perhaps moving a small number of engines during the day, are they shown here?

Mr. Keefe: No, sir.

Mr. Sheean: And this part of the exhibit then, is simply the payroll of hostlers who are exclusively hostlers, do no other work than the work of hostlers.

Mr. Keefe: Yes, sir, I have shown it for all railroads, whether or not the hostlers are governed in any way by any of the schedules at the present time.

Mr. Sheean: Now, in a general way, what is shown as to that?

Mr. Keefe: There is a variation in the wages received in that class of service, running from $50 to $60, $70, $80, $90, and as high as $100, in some instances, for hostling positions.

Mr. Sheean: Some of it on a monthly basis?

Mr. Keefe: This exhibit does not show whether they are on a monthly or hourly basis, but there are a number of them

that are on a monthly basis, and generally I would say that it was a monthly basis. That is from my recollection of the contracts, that they provide, for the most part, a monthly basis.

Mr. Sheean: The details as to the variations and the points at which the hostlers are now paid, are shown on this part of the exhibit?

Mr. Keefe: Yes.

Mr. Sheean The next section of the exhibit treats of what subject?

Mr. Keefe: Hostlers who are engaged part of their time as firemen, engineers or motormen, but their wages as hostlers were greater than their wages as engineers, firemen or motormen.

Mr. Sheean: That is Section 38 of the exhibit?

Mr. Keefe: Yes.

Mr. Sheean: And shows the cases where a hostler has had an occasional road trip?

Mr. Keefe: Yes.

Mr. Sheean: Or earned money in some other transportation service?

Mr. Keefe: Yes. It does not include their earnings that they may have derived from shop work, but simply from road service, such as an engineer or fireman, or as a hostler. But it does not include their earnings that they may have received at any shop work. These figures, by reason of having road service intermingled with them, show a much higher pay than the straight hostler.

Mr. Sheean: Then the following part of the exhibit, or section 39 of the exhibit, takes up the men who were not available for duty the entire month?

Mr. Keefe: Yes.

Mr. Sheean: Under that heading, "Men not available for duty the entire month," I take it that you mean men who as engineers earned less than $100, and who were not available during the entire month?

Mr. Keefe: That is the proper understanding of this report. It only included men who made less than the $100, who were considered as available.

Mr. Sheean: That is, you made no inquiry about any man

earning less than $100, as to whether he was or was not available?

Mr. Keefe: That is correct.

Mr. Sheean: Now, just what is assumed or what is shown at this part of the exhibit, Section 39?

Mr. Keefe: Section 39 groups together all of the engineers who were considered as not being available for duty the entire month, and who are shown on Exhibits 26 and 27 in detail, simply carrying them forward under one grouping here, so as to have them available for future uses.

Mr. Park: This shows in detail just why they laid off?

Mr. Sheean: As to the greater number of the roads, but as was shown in the question of Mr. Shea this morning, some of the roads, as to some of the men, simply say "Laid off, own accord," without showing the dates or the number of days laid off.

Mr. Park: Just gives the general information?

Mr. Sheean: This will show every engineer treated under that classification of not being available for duty, and just what the reason is assigned, and as to any one where the information is deemed insufficient, or any of the roads, inquiry might be made if it was thought desirable.

Well, from 1710 down to 1761, you show the names of the engineers, railroad by railroad, and the reasons which are given by the roads as to why those particular engineers did not earn more than $100 in that month?

Mr. Keefe: Yes, divided as between classes of service.

Mr. Sheean: Then, beginning at page 1762, you show as to firemen—

The Chairman: I would like to ask one question. Page 1732, under the Chicago, Milwaukee & St. Paul Railroad, I see the first engineer in that division that I have mentioned, Hessler, I see an entry under his name, "Could have worked as fireman." What does that indicate?

Mr. Keefe: Indicates that was an engineer who worked 12 days in that month, earning $78.32. The Milwaukee say it was possible for him to have earned more money if he would have taken his seniority rights as a fireman. That is the explanation they give.

The Chairman: Are we to infer that, while he was laid off,

notwithstanding the fact he was laid off as an engineer, that he was offered work as a fireman, and refused to work?

Mr. Keefe: That he had the opportunity to work as a fireman, and did not exercise that opportunity.

The Chairman: In other words, it was optional?

Mr. Keefe: Yes, sir.

The Chairman: He could have worked if he wanted to?

Mr. Keefe: I so understand the explanation given.

Mr. Park: There are cases in other parts of the exhibit where a man worked as fireman, switchman and possibly as motorman, in one month?

Mr. Keefe: Yes.

Mr. Stone: Are we to understand by that that he could have exercised his seniority rights and gone back to firing?

Mr. Keefe: I understand so. He had an opportunity to go back to firing, which he did not avail himself of.

Mr. Stone: So that is charged against him?

Mr. Keefe: Well, it is given in explanation as to why his earnings were $78.32, Mr. Stone.

Mr. Park: He preferred to run as an engineer and watch for trips and not go back to firing? That was optional with him, as I understand it. He might have made say half a dozen trips as a fireman in that month if he had so elected?

The Chairman: In other words, are we to infer that here was a job ready and waiting for him, and he could have accepted and been employed all the time if he had elected to do so?

Mr. Keefe: Not necessarily employed all the time; he could have had an opportunity to make some additional earnings as fireman. As to whether or not it was all of the time, I couldn't say, but there was an opportunity for him to work and earn some additional wages as fireman, in case he wanted to do so.

Mr. Burgess: If he had done so, Mr. Keefe, what would have become of the fireman who was in the position that he chose to accept?

Mr. Keefe: He would have taken whatever his rights gave him as a fireman.

Mr. Burgess: He would take another firing position?

Mr. Keefe: If he cared to do so.

Mr. Burgess: What would have become of that fireman?

Mr. Keefe: It would go on down till somebody would be out of a job.

Mr. Burgess: Somebody had to lose the money, whether it was Tom Jones or Frank Smith, somebody did have eventually to lose money?

Mr. Keefe: Somebody would have to if he took a position as fireman.

Mr. Park: Like Mr. Green described a lot of dominoes, one man bumps the rest and they all go back, a natural law.

Mr. Byram: Do you understand that that situation could be changed by any increase in rates of pay?

Mr. Keefe: I don't understand that their proposition would in any way take care of that question whatever.

Mr. Byram: None of these requests here that are up for consideration by this Board would have any effect in any way to change the fact that when there wasn't enough work for these men, some man has to lay off?

Mr. Keefe: I don't understand it.

Mr. Byram: Then that question cannot be corrected by any of these propositions?

Mr. Keefe: I don't so understand it.

Mr. Burgess: But if there was an ambiguous implication placed upon the language here, it might affect some of the other requests that are here?

Mr. Keefe: I do not understand what your question means.

Mr. Burgess: Well, my question means this, construing this language literally, as it appears, it would convey the idea, with your explanation, to the average layman, that this engineer could have exercised his seniority rights and earned more money; but the fact of the matter is, when it finally reaches the conclusion, some man has to lose the money, because the work is not there. Is not that right?

Mr. Keefe: There are a certain amount of wages for engineers and firemen, that are paid to the engineers and firemen, and they are distributed between them according to their opportunity to earn it.

Mr. Burgess: And if business is depressed, some engineers and firemen have to suffer the loss?

Mr. Keefe: Yes, some engineer or fireman.

Mr. Burgess: That is all, thank you.

Mr. Stone: And when he exercises his seniority, that is criticised, and when he wants to divide up, you bring in another report showing what he could have done, and because he failed to exercise his seniority.

Mr. Park: That generally gets back to the young fellow, in the case of the fireman, that is starting in railroad work, and perhaps has not become a member of any organization, and is very glad of having the opportunity of doing extra work and watching his opportunity until, by seniority, he gets a permanent and high paid position.

Mr. Keefe: The changes due to depression in business always affect the younger men.

Mr. Sheean: The last part of this exhibit, beginning at 1870, shows the extra men. That is a summary on the different roads of those who were reported as extra men.

Mr. Keefe: Who earned as engineers less than $100, and as road firemen less than $70, and the yard firemen and hostlers $65.

Mr. Sheean: Following out the three divisions here of men not available for duty the entire month, into those who were classed as extra men, or reported as extra men, giving as to each road who they were and what their earnings were.

Mr. Keefe: Yes, for that particular class of men.

Mr. Sheean: Yes, well, by that particular class you mean extra engineers who earned less than $100, extra road firemen who earned less than $70, and extra firemen who earned less than $65 in—

Mr. Keefe: Extra yard firemen.

Mr. Sheean: Extra yard firemen who earned less than $65.

Mr. Keefe: And hostlers who earned less than $65.

Mr. Sheean: Have you caused to be summarized the detailed information which is shown in these last three exhibits that we have discussed?

Mr. Keefe: Yes, sir; Exhibit 29.

Mr. Sheean: Taking Exhibit No. 29, will you explain just what is shown on sheet 1 of that exhibit?

Mr. Keefe: On sheet No. 1 of Exhibit 29, is a summary of wages paid to engineers, firemen, motormen, motormen-helpers and hostlers in all classes of service during the month of Octo-

ber, 1913, divided as between the character of services, and as classified in exhibits 26 and 28 inclusive.

Mr. Sheean: That is, Mr. Keefe, you have taken, as the first line of this exhibit, engineers entirely in passenger service, the same division that you made in Section No. 1 of Exhibit No. 26?

Mr. Keefe: Yes, sir.

Mr. Sheean: And in the first column, which you show on the Exhibit, Section No. 1, do those section numbers refer to the section numbers of the three preceding exhibits?

Mr. Keefe: Yes.

Mr. Sheean: So that the detail as to engineers entirely in passenger service, may be ascertained by reference to Section No. 1 of Exhibit 29?

Mr. Keefe: Yes, sir.

Mr. Sheean: That covers how many engineers entirely in passenger service, in that month?

Mr. Keefe: 5,128 men.

Mr. Sheean: And the number of days worked?

Mr. Keefe: 116,004.5.

Mr. Sheean: The number of hours.

Mr. Keefe: 809,783.9.

Mr. Sheean: And the total wages paid the engineers who were entirely in passenger service.

Mr. Keefe: $902,091.54.

Mr. Sheean: The average days per month which men in passenger service were shown to have worked.

Mr. Keefe: 22.6 days.

Mr. Sheean: And the average number of hours per day?

Mr. Keefe: Seven hours.

Mr. Sheean: And the average earnings per hour per day, and per man, are what?

Mr. Keefe: $1.11 per hour, $7.78 per day, and $175.91 per man.

Mr. Byram: What line is that? I cannot follow you.

Mr. Keefe: Line No. 1, sheet No. 1.

Mr. Sheean: The average earnings per hour, per day and per man, are shown there.

Mr. Keefe: Yes.

Mr. Sheean: That takes the men, Mr. Keefe, who earned

no money in the month of October, in any other work than as engineers in passenger service?

Mr. Keefe: Yes.

Mr. Sheean: And does it take all of the men who earned, in October, no money in any other line of work than as engineers in passenger service?

Mr. Keefe: It takes every man that worked as an engineer exclusively, in October, 1913.

Mr. Sheean: So that, in that month, if there was one man who made a single passenger run, in the month of October, and earned $5.00 on that one run, he would be counted as one man working that month?

Mr. Keefe: Yes.

Mr. Sheean: And in the average thus obtained on that basis, of averaging men, counting him as a man, and counting him for the purpose of this part of the exhibit, as available for the entire month, the average earnings per day are $7.78 of those engineers who worked entirely in passenger service?

Mr. Keefe: Yes.

Mr. Sheean: Now, the next line, too, engineers entirely in suburban passenger service, is carried across the page in the same manner?

Mr. Keefe: Yes.

Mr. Sheean: Under section No. 2, by reference to your Exhibit No. 26, you will have the detail of all the men who are included in making up this 185 men thus classified?

Mr. Keefe: Yes.

Mr. Sheean: Having the names of each of the men and the railroad on which he worked, the miles that he made and the money that he received.

Mr. Keefe: And the hours that he worked, yes, sir.

Mr. Sheean: And of the 185 engineers entirely in suburban passenger service during that month, do you count all of the men who earned no money in any other way than as engineers in suburban passenger service?

Mr. Keefe: No.

Mr. Sheean: What is counted in arriving at the 185 men?

Mr. Keefe: Every man who worked exclusively in suburban service, regardless of the time that he was employed in such service.

Mr. Sheean: Then you do count, in that 185, all men who, during the month of October, earned no money in any other way than as an engineer in suburban passenger service?

Mr. Keefe: Yes. I did not understand your question the first time.

Mr. Sheean: And if, in suburban passenger service, an engineer was shown as working one day, or two days, and not earning any money other than in suburban passenger service, he would be counted in this 185 men?

Mr. Keefe: Yes.

Mr. Sheean: Without taking up the detail as to the number of days or number of hours, or the total wages, what is the showing as to the average earnings per hour, per day and per month, of the engineers who worked entirely in suburban passenger service?

Mr. Keefe: Average earnings per hour, 78 cents; average earnings per day, $5.73; average earnings per man, $143.97.

Mr. Sheean: Then the line No. 3 here, corresponds with section 3 of your Exhibit No. 26, engineers partly in passenger service and partly in other service; the greater portion of wages being derived from passenger service?

Mr. Keefe: Yes.

Mr. Sheean: The 718 men who, in the month of October, worked partly in passenger service and partly in other service, who earned the greater part of their wages in passenger service, will be shown in section 3 of this exhibit?

Mr. Keefe: Yes.

Mr. Sheean: The names of all men, the hours of each man, the money paid each of the men who make up this 718 men?

Mr. Keefe: Yes.

Mr. Sheean: And of the 718 men who worked in that manner in that month, what were the average earnings per hour, per day and per man, per month?

Mr. Keefe: Average earnings per hour, 90 cents; per day, $7.31; average earnings per man, $155.90.

Mr. Sheean: The next subdivision, 4, may, in like manner, be traced back to section No. 4, of the last preceding exhibits?

Mr. Keefe: Yes.

Mr. Sheean: From which can be obtained the names of the sixteen men, and the roads on which they worked.

Mr. Keefe: Yes.

Mr. Sheean: And as to the engineers, part of the month as firemen, hostlers or motormen, but the wages as engineer being greater than the wages as fireman, and the greater part of the wages as engineer being in passenger service, what were the average earnings per hour, per day, and per man?

Mr. Keefe: Average earnings per hour, 65 cents; average earnings per day, $6.51; average earnings per man, $141.64.

Mr. Sheean: Then, on line 5, Mr. Keefe, you have total service of the passenger class. That is, by the passenger class, being the engineers shown in detail on lines 1, 2, 3 and 4.

Mr. Keefe: Yes.

Mr. Sheean: That covers how many men on the roads represented?

Mr. Keefe: 6,047 men.

Mr. Sheean: And in getting the total of 6,047 men, you counted a man all of whose earnings, whether for a single day or for two days were solely in passenger service, as shown above?

Mr. Keefe: Yes, in either of the four designations.

Mr. Sheean: In either one of the four preceding lines or designations?

Mr. Keefe: Yes.

Mr. Sheean: Of those 6,047 men, what were the average earnings per hour, per day and per man?

Mr. Keefe: The average earnings per hour were $1.07; average earnings per day, $7.65; average earnings per man, $172.47.

Mr. Sheean: Line 6, then, takes engineers entirely in through or irregular freight service?

Mr. Keefe: Yes.

Mr. Sheean: Section No. 5 of your preceding exhibit will give the names of the 3,027 men who, in the month of October, 1913, made no money in any class of service other than through or irregular freight service?

Mr. Keefe: Yes.

Mr. Sheean: And in getting this total of 3,027 men, did you include all the individuals who worked a single day or two days in through or irregular freight service, and who earned

no money in any other service than in through or irregular freight service?

Mr. Keefe: Yes.

Mr. Sheean: Of the 3,027 men, all of whose earnings accrued in through or irregular freight service, what were the average earnings per hour, per day and per man?

Mr. Keefe: 67 cents per hour; $7.51 per day; and $147.34 per man.

Mr. Sheean: On line 7 you show engineers partly in through or irregular freight service, and partly in other service?

Mr. Keefe: Yes, sir.

Mr. Sheean: The greater part of their wages being derived from through or irregular freight service?

Mr. Keefe: Yes.

Mr. Sheean: The detail, Mr. Keefe, of the 6,808 men who in that month, obtained their earnings in that manner, will be shown in section 6 of the preceding exhibits?

Mr. Keefe: Yes.

Mr. Sheean: So that the earnings of each individual man, the number of days he worked, and the number of hours he worked, and the amount of the money he received, can be ascertained from Section No. 6 of your preceding exhibit?

Mr. Keefe: Yes.

Mr. Sheean: That part of your exhibit covering a total of 6,808 men?

Mr. Keefe: Yes.

Mr. Sheean: Engineers who earned their money in that manner, in that month, average how much per hour, per day and per man?

Mr. Keefe: 66 cents per hour; $7.33 per day; and $154.34 per man.

Mr. Sheean: Mr. Keefe, so, as to each one of the thirty-eight sections that are shown in exhibits 26, 27 and 28, running from section 1 to section 38, there may be ascertained the names of all the individuals, the roads on which they worked, and the details as to the earnings of each or all of them, by using the third column appearing in this sheet No. 1, as an index to the particular section where the detail is shown?

Mr. Keefe: Yes.

Mr. Sheean: On line No. 8 you show the engineers who,

during part of the month, were firemen, hostlers or motormen, but whose wages as engineer were greater than the wages as fireman, hostler or motorman, and the greater portion of the wages as engineer being derived from through or irregular freight service?

The Chairman: That appears on line No. 7, does it not?

Mr. Sheean: No, line No. 8, your Honor, but section No. 7 of the preceding exhibit.

The Chairman: Yes, I see it; section 7.

Mr. Sheean: Yes, the discrepancy or—

The Chairman: I was thinking that indicated a line, but I see it is a section.

Mr. Sheean: And that is brought about, your Honor will observe, from the fact that line 5 summarizes the total service of the passenger class, having an extra line on this exhibit, because of totaling the passenger class, while the section index in the other column will refer to these marginal indexes in each case.

The Chairman: I understand.

Mr. Sheean: Engineers who earned their money in that manner during that month, are shown to be 386 in number?

Mr. Keefe: Yes.

Mr. Sheean: And what were their average earnings per hour, per day and per man?

Mr. Keefe: Per hour, 60 cents; per day, $6.10; per man, $129.84.

Mr. Sheean: Taking the total service of the through or irregular freight class, Mr. Keefe, what number of men are covered by these exhibits?

Mr. Keefe: 10,221.

Mr. Sheean: And of the 10,221 men in through or irregular freight service, what were the average earnings, per hour, per day and per man, in that month?

Mr. Keefe: 66 cents per hour, $7.33 per day, and $151.64 per man.

Mr. Sheean: Let us take the first engineers entirely in local or way freight service? In that month, how many are shown there?

Mr. Keefe: 1,844.

Mr. Sheean: What were their average earnings, per hour, per day and per man.

Mr. Keefe: 59 cents per hour, $7.15 per day, and $161.07 per man.

Mr. Sheean: The total service of the local or way freight class?

Mr. Keefe: 3,778 men, with average earnings per hour of 59 cents, per day of $7.13 and per man of $156.68.

Mr. Sheean: Then in the yard or switching service, how many engineers made their entire earnings in yard, or switching service in that month?

Mr. Keefe: Regardless of the number of days or hours that they may have worked during the month, there were 6,313 engineers.

Mr. Sheean: I asked you, Mr. Keefe, the engineers who worked, whose earnings were solely derived from yard or switching service?

Mr. Keefe: 4,770.

Mr. Sheean: And of the 4,770, what were the average earnings per hour, per day and per man?

Mr. Keefe: Per hour, 43 cents; per day, $4.85; per man, $119.73.

Mr. Sheean: And taking the total service of the yard class, how many men are covered by this exhibit?

Mr. Keefe: 6,313.

Mr. Sheean: Their average earnings per hour, per day and per man?

Mr. Keefe: 43 cents per hour; $4.91 per day; $119.41 per man.

Mr. Sheean: Now, as to the unclassified service, without taking up the time as to the separation of the three classes there, how many men are covered by the total service of the pusher, helper and generally unclassified service?

Mr. Keefe: 2,087.

Mr. Sheean: What were their average earnings per hour, per day and per man?

Mr. Keefe: Average earnings per hour, 57 cents; average earnings per days, $6.65; average earnings per man, $151.94.

Mr. Sheean: Now, taking the firemen, how many firemen made all their earnings in passenger service, in that month?

Mr. Keefe: Entirely in passenger service?

Mr. Sheean: Yes, entirely in passenger service; no other earnings?

Mr. Keefe: 3,496.

Mr. Sheean: And of the 3,496 firemen, what were their average earnings per hour, per day and per month?

Mr. Keefe: Per hour, 70 cents; per day, $4.92; per man, $105.73, shown on line 23.

Mr. Sheean: Then, after getting the entire firemen's services in the passenger class, how many men are covered and what is the average?

Mr. Keefe: 6,388 men, at an average of 64 cents per hour, $4.83 per day and $104.25 per man.

Mr. Sheean: Now, as to firemen, who made no money in anything except through or irregular freight service, how many names appearing on the roll in that month?

Mr. Keefe: Entirely, you mean?

Mr. Sheean: Yes, who earned nothing in any service, except through or irregular?

Mr. Keefe: 3,053 men; an average of 44 cents per hour; $4.93 per day; $73.55 per man.

Mr. Sheean: And assembling the through or irregular freight class, as is done here in these divisions that we have gone over in detail, how many men are covered and what are the averages?

Mr. Keefe: 11,960 men; an average of 43 cents per hour; $4.73 per day, or $85.65 per man.

Mr. Sheean: And, as to the firemen here, the averages the same way; wherever a fireman's name appeared and even though he worked only the one day, he was treated as a man?

Mr. Keefe: Yes, or, in some instances, they worked less than a day—a few hours. We have shown him as a man for the month.

Mr. Sheean: Even where it was only a half day?

Mr. Keefe: Yes.

Mr. Sheean: That obtains as to the firemen in the same way as the engineers, in these averages?

Mr. Keefe: Yes, sir.

Mr. Sheean: Now, will you give us, Mr. Keefe, as to the

local or way freight, just what the showing there is? How many firemen are included in that service?

Mr. Keefe: As a class?

Mr. Sheean: As a class, yes.

Mr. Keefe: 4,054 men, earning 39 cents per hour, or $4.52 per day; or $90.74 per month, shown on line No. 35.

Mr. Sheean: Firemen in yard service?

Mr. Keefe: Yard service as a class?

Mr. Sheean: Yes.

Mr. Keefe: 7,398; an average earning per hour of 26 cents, or per day of $2.98, or per man of $61.67, as shown on line 39.

Mr. Sheean: The pusher, helper, and other unclassified service, firemen, how many men?

Mr. Keefe: As a class, 2,521, with an average earnings per hour of 36 cents; per day of $4.23; per man, $83.93.

Mr. Sheean: Or, taking the total firemen, all classes of service, what is the showing? Let me, before I—strike that out. Taking all engineers, the total number of engineers shown here, what is the showing as to the total number and the average earnings?

Mr. Keefe: As shown on line No. 22, counting all engineers—counting as an engineer any man who works any part of the month as an engineer, regardless of the length of time, 28,446, with an average earnings per hour of 64 cents; per day of $6.73, or per man of $149.61.

Mr. Sheean: That is, Mr. Keefe, of the engineers, 28,446 in number, counting the men who worked the 31 days, and counting the men who worked 1, 2, 3, 4 or 5, or any other number of days, if those 28,446 men had divided evenly—distributed among themselves, as a group, the money paid to them as engineers during that month, there would have been for the man who worked one day, as well as for the man who worked 31 days, an average sum to go to each one of them, of $149.61?

Mr. Keefe: Yes.

Mr. Sheean: Now, as to the firemen, how many men are covered?

Mr. Keefe: 32,321.

Mr. Sheean: And of those 32,321 firemen, if they had divided equally among themselves the money which the com-

pany paid to them during that month, how much would there have been for each man in the service?

Mr. Keefe: $84.34, or an average earnings per hour of 41 cents, or per day of $4.27.

Mr. Sheean: Now, following this, showing separately as to engineers and firemen, you show the motormen, a total number of 162 men?

Mr. Keefe: Yes.

Mr. Sheean: And they averaged how much per hour and per day and per man?

Mr. Keefe: 56 cents per hour; $5.28 per day; $138.29 per man.

Mr. Sheean: And the motormen helpers, how many and what did they average?

Mr. Keefe: There are just seven. Their earnings per hour were 39 cents; per day, $4.16; per man, $123.11.

Mr. Sheean: Then the hostlers and those who worked as hostlers, part of the month and had an occasional trip as engineer, fireman or motorman, how many were they in number and what was their average pay?

Mr. Keefe: 2,688 men, averaging 25 cents per hour, or $2.90 per day, or $75.36 per man.

Mr. Sheean: Line 54 shows what, Mr. Keefe?

Mr. Keefe: Line 54 shows the total number of men who were employed as engineers, firemen, motormen, motormen helpers, hostlers, as 63,624.

Mr. Sheean: And then the grand total of the wages, $7,207,407.61 paid to those 63,000 men.

Mr. Keefe: Yes.

Mr. Sheean: Now, in sheet No. 2 of this exhibit you carry out in the same manner on each of these classes of service, but excluding certain men who were not available for duty. By that star and note, it is shown that you have excluded the men below $100 as engineer, below $70 as road fireman, and below $65 in yard or hostling service, where, upon inquiry, it was found that the men were not available for duty during the month.

Mr. Keefe: Yes, sir.

Mr. Sheean: But as to any engineer earning more than

$100, in this statement he was treated as available during the entire month?

Mr. Keefe: Yes.

Mr. Sheean: No matter how many days he actually worked?

Mr. Keefe: That is correct.

Mr. Sheean: And as to any fireman who earned more than $70, he was treated as available the entire month?

Mr. Keefe: Yes.

Mr. Sheean: Any road fireman?

Mr. Keefe: Yes.

Mr. Sheean: Any yard fireman or yard hostler who earned more than $65 was treated as available during the entire month?

Mr. Keefe: Any yard fireman or hostler of any description, yes.

Mr. Sheean: Then, only those were excluded in this computation who, as engineers, earned less than $100, or, as firemen, earned less than $70 or, as yardmen, or hostlers, earned less than $65, and who, upon inquiry, were shown to have diminished their earnings below that sum by the fact of their not being available for duty during the entire month?

Mr. Keefe: Yes. It does not, however, include extra men. We did not exclude extra men where they earned less than this amount. They were in this sheet No. 2, considered as available the entire month also.

Mr. Sheean: Well, the general classification places as to where this can be found on each of the sections of the preceding exhibits, and the form of the compilation is the same as the form followed on sheet No. 1?

Mr. Keefe: Yes.

Mr. Sheean: The change or changes in the result by excluding these men is shown under the heads of average earnings on the latter part of this sheet?

Mr. Keefe: Yes.

Mr. Sheean: Will you just briefly give us, Mr. Keefe, not the details as to each of these, but, taking the total service of the passenger class, how many men are covered and the average earnings per hour, per day and per man, where you have excluded the engineer who earned less than $100 a month and who was not available for duty during that entire month?

Mr. Keefe: A total of 4,820 men.

Mr. Sheean: No, just cover the total service of the passenger class.

Mr. Keefe: 5,646; average earnings per hour, $1.08; average earnings per day, $7.67; average earnings per man, $180.39.

Mr. Sheean: In the total service, the through or irregular freight service, how many men are shown?

Mr. Keefe: Shown on line No. 9, 8,984 men; average earnings per hour, 66 cents; per day, $7.36; and per man, $163.68.

Mr. Sheean: In the local or way freight service?

Mr. Keefe: Shown on line 13, 3,390 men, with an average earnings per hour of 59 cents; per day, $7.15; per man, $166.88.

Mr. Sheean: Well, now, without taking the detail—

Mr. Stone: Pardon me, Mr. Keefe; what line are you reading from?

Mr. Keefe: Line 13.

Mr. Stone: You certainly did not read the figures as I have got them here.

Mr. Sheean: I am afraid you are taking the section number again, as the Judge did a moment ago.

Mr. Stone: I am reading right from the line.

Mr. Sheean: Line 13. Read it again, Mr. Keefe.

Mr. Keefe: A total of 3,390 men; average earnings per hour, 59 cents; per day, $7.15; per man, $166.88.

Mr. Stone: $156.68. Oh, you were over on the next page.

Mr. Keefe: Sheet No. 2.

Mr. Stone: Oh, beg your pardon. I could not make it go together.

Mr. Sheean: Now, in the yard class, Mr. Keefe, how many men are covered and what are the averages as to them?

Mr. Keefe: As shown on line 17, 5,213 men; average earnings per hour, 43 cents; per day, $4.93; per man, $129.86.

Mr. Sheean: In the total service of the pusher, helper and unclassified?

Mr. Keefe: Line 21, 1,810 men; average earnings per hour of 57 cents; per day of $6.68; per man of $165.82.

Mr. Sheean: Now, without taking the detail as to each of the classes in firemen's service, just tell us of the total firemen—what the result as to the total firemen is?

Mr. Keefe: As shown on line No. 44, for 24,279 firemen,

with an average earnings per hour of 42 cents; per day of $4.34; per man of $100.63.

Mr. Sheean: Now, as to the men who are in fact excluded in this computation, Mr. Keefe, the detail may be found in Volume 3—

Mr. Keefe: Exhibit No. 28, Section No. 40.

Mr. Sheean: And at Section No. 40 will be shown the names.

Mr. Keefe: Wait a minute. Sections 39 and 40.

Mr. Sheean: Sections 39 and 40 will show the names of all the men, and what the actual earnings of those men were who were excluded, in arriving at this result?

Mr. Keefe: Yes. It shows every individual who was excluded from sheet 1, in arriving at the figures shown on sheet No. 2.

Mr. Sheean: Now, as to this sheet No. 2, Mr. Keefe, is there anything further that you wish to direct attention to before passing it? My purpose now is simply to enable the board to understand the method of summarizing on this sheet rather than get the detail of it.

Mr. Keefe: No. The hostlers are shown here also, the same as the firemen and engineers, the total for the hostlers is on line No. 53.

Mr. Sheean: Now, sheet No. 3 excludes the same men who were excluded on sheet No. 2?

Mr. Keefe: Yes.

Mr. Sheean: And also excludes certain extra men? What extra men are here excluded?

Mr. Keefe: Such extra men who earn less as engineers than $100, as road firemen or motormen-helpers, $70, and firemen in yard service and hostlers less than $65, where they were not available for duty the entire month.

Mr. Sheean: That is, in both of the preceding exhibits, an extra man, or a man on the extra board who earned as engineer more than $100 was treated as available during the entire month?

Mr. Keefe: Yes.

Mr. Sheean: But where, upon inquiry as to why a man, as engineer, earned less than $100, it was shown that he was on the extra board, he is excluded in this computation?

Mr. Keefe: Yes.

Mr. Sheean: So that Exhibit 29, sheet 3, arrives at the average earnings of the men who were available to the extent of enabling them as engineers to earn $100 or more, and excludes only the extra men, and also the regular men who laid off to such an extent that their earnings dropped to $100 as engineers, $70 as road firemen, and $65 as yard firemen.

Mr. Keefe. Yes.

Mr. Sheean: Now, the extra men whom you exclude on this summary on sheet No. 3, are shown by individual names and individual earnings on section No. 41, of Exhibit No. 28?

Mr. Keefe: 28.

Mr. Sheean: So that just the men who are excluded, and just what the earnings of those men thus excluded were, may be found in this part of Exhibit 28, in section 41 of Exhibit 28.

Mr. Keefe: Yes.

Mr. Sheean: After excluding these extra men or the part of the extra men who earned less than $100 as engineers, what are the results—total service in passenger class—upon the averages?

Mr. Keefe: It shows on line No. 5, 5,627 men with an average earnings per hour $1.08; average earnings per day $7.68; average earnings per man $180.75.

Mr. Sheean: In the through or regular freight service, the number of men and average earnings.

Mr. Keefe: For a total of 8,849 men, an average pay per hour was 66 cents; per day $7.37; per man $164.93.

Mr. Sheean: In the local or way freight?

Mr. Keefe: It shows on line No. 13, for 3,344 men, average earnings per hour 59 cents; per day $7.15; per man $168.11.

Mr. Sheean: And in the yard?

Mr. Keefe: As per line No. 17, 5,027 men, average earnings per hour 43 cents; per day $4.93; per man $131.64.

Mr. Sheean: Taking up total service of the pusher, helper and work class.

Mr. Keefe: Line 21, 1,792 men; average earnings per hour 57 cents; per day $6.67; per man $166.72.

Mr. Sheean: As to the entire engineers, excluding only those who, as extra men, did not earn as much as $100, and also excluding the regular men who laid off to such an extent as to

put their earnings below $100, what are the total number and the average earnings?

Mr. Keefe: It shows on line 22, 24,639 men; average earnings per hour 65 cents; per day $6.80; per man $162.31.

Mr. Sheean: Now, without taking the detail as to the firemen, what is the total as to firemen in all classes?

Mr. Keefe: Firemen in all classes, shown on line No. 44, 22,998 men, average earnings per hour 42 cents, average earnings per day $4.36; average earnings per man $103.35.

Mr. Sheean: Now, does that mean, Mr. Keefe, that, excluding only the extra men who, because of being extra men, were not enabled to earn $70 in road service, or $65 in yard service, and excluding only the regular men who laid off to such an extent as to put their earnings below that amount, there was available and actually paid to the 22,998 firemen here shown a sufficient sum of money, viz.: $2,376,903.31 to have enabled the 22,998 firemen to divide that on an equal basis of $103.35 each.

Mr. Keefe: Yes.

Mr. Sheean: At the bottom of the column headed "Total Wages," on each of these exhibits you show the total amount of the payroll, or the amount by which the total payroll has been changed through these deductions of extra men and the men not available?

Mr. Keefe: Yes.

Mr. Sheean: That is on sheet No. 1 the total payroll for the month of $7,207,407.61, distributed among all of the men who were available at any time during the month.

Mr. Keefe: Who worked any part?

Mr. Sheean: Who worked any part of the month.

Mr. Keefe: Yes.

Mr. Sheean: And that total payroll distributed among all of the men, whether working half a day or more, reduced to a payroll of $6,678,765.01 on sheet No. 2, distributed among the men shown on this sheet No. 2.

Mr. Keefe: Yes.

Mr. Sheean: And after excluding the extra men who were not able to earn as much as $70 in road service or $65 in yard service, or $100 of engineers, that payroll is reduced as shown on sheet No. 3 to $6,578,789.13.

Mr. Keefe: Yes.

Mr. Sheean: And, distributed among the small number of men shown on sheet No. 3.

Mr. Keefe: Yes.

Mr. Sheean: Now, sheet No. 4, Mr. Keefe, of Exhibit 29, shows just what?

Mr. Keefe: It shows or classifies under each of the headings shown, the number of men taken under consideration in the compilation of sheet No. 3 of Exhibit 29, that earned between the specified amounts per month.

Mr. Sheean: Well, now, Mr. Keefe, I notice that on sheet No. 3 in the second column you show there are a total of 49,887 men considered in the computation and averages shown on sheet No. 3?

Mr. Keefe: Yes.

Mr. Sheean: The 49,887 men divided into the classes as shown on sheet No. 3?

Mr. Keefe: Yes.

Mr. Sheean: Are the same 49,887 men shown on line 54 of this sheet No. 4?

Mr. Keefe: Yes.

Mr. Sheean: And it covers and includes all of the men on these payrolls in the month of October, excluding only those who are excluded on sheet No. 3?

Mr. Keefe: Yes.

Mr. Sheean: Now, of the 49,887 men, shown by both these sheets, it appears from sheet No. 3 that the total of 24,639 engineers averaged $162.31.

Mr. Keefe: Yes.

Mr. Sheean: Per month?

Mr. Keefe: Yes.

Mr. Sheean: You show on sheet No. 4 what they actually received in different groups, instead of averaging it among the entire 24,639?

Mr. Keefe: Yes, line No. 22, sheet No. 4.

Mr. Sheean: Line No. 22 of sheet 4 shows the same 24,639 men shown on line 22 of sheet No. 3?

Mr. Keefe: Yes, line 22 of sheet No. 4.

Mr. Sheean: Well, the same men are shown on line 22 of sheet No. 3?

Mr. Keefe: Yes.

Mr. Sheean: I just want to follow this a moment, Mr. Keefe. On sheet No. 3 at line 22, the 24,639 men average their total earnings of $3,999,202.94?

Mr. Keefe: Yes.

Mr. Sheean: And as shown on line 22 of sheet No. 3, that would have given to each one of those men, had they divided that equally, $162.31 in that month?

Mr. Keefe: Yes.

Mr. Sheean: Now then, line 22 on sheet No. 4, shows the same 24,639 men, but shows the classes into which, or groups, into which they divided that money, instead of the uniform division of $162.31 each.

Mr. Keefe: Yes.

Mr. Sheean: In the actual division of that money just how was it divided, beginning with the low men?

Mr. Keefe: Beginning with those less than $50, and then from $50 to $58.32, all the way up to from $358.33 to $366.65, that gradation is on the basis of a yearly earning of $100, in other words, the column of $100 to $108.32 is on the basis of say $1,200 per man.

Mr. Sheean: That is, each of these columns or divisions across the page is simply divided here so that the progressive steps would be $100 per year?

Mr. Keefe: Yes.

Mr. Sheean: Now, under the engineers I see that there are three men who earned less than $58.32 per month?

Mr. Keefe: Yes.

Mr. Sheean: Have you the facts about those men there, as to why that was?

Mr. Keefe: Yes. They were included and taken into the average earnings because those men were deprived, through no cause of their own, of ability to earn more money. There were some men on the Southern Pacific, men who were prevented because of tunnel trouble, from earning more wages.

Mr. Sheean: Well, there are two men in passenger service. Were there passenger trains tied up out there, or abandoned?

Mr. Keefe: I don't know the details as to that. They were in that class of service.

The Chairman: We will now take a recess, gentlemen.

(Whereupon at 12:30 o'clock P. M. a recess was taken until 2:30 o'clock P. M.)

After Recess.

J. H. KEEFE was recalled for further examination, and having been previously sworn, testified as follows:

Mr. Sheean: On sheet No. 4, of Exhibit 29, Mr. Keefe, you had explained the matter of the divisions here on breaks of $100 per year in compensation, reducing that to a monthly basis.

Mr. Keefe: Yes.

Mr. Sheean: Now, there were two men in passenger service between $50 and $58.32 in that month?

Mr. Keefe: Yes.

Mr. Sheean: And did you say that both of those were because of tunnel trouble?

Mr. Keefe: Yes.

Mr. Sheean: Their runs were both on what railroad?

Mr. Keefe: On the Southern Pacific Company, the Pacific System.

Mr. Sheean: Then there is no intermediate in passenger service until you get up to $100 to $108.32 per month?

Mr. Keefe: Yes.

Mr. Sheean: Now, in passenger service, Mr. Keefe, where are the large numbers of the employes in the monthly compensation, in what part of this table?

Mr. Keefe: 501 engineers drew from $175 to $183.32. 459—

Mr. Sheean: That is, those who worked entirely in passenger service?

Mr. Keefe: Yes.

Mr. Sheean: Taking the total service of the passenger class, the largest number is in that same space there, of $175 to $183.32?

Mr. Keefe: Yes, 563 engineers of the passenger class drew earnings between those two figures.

Mr. Sheean: Then the next highest in number is the class between $191.66 and $199.99?

Mr. Keefe: Yes, 541 drew earnings between $191.66 and $199.99.

Mr. Sheean: And above $200 a month in passenger service, I will not ask you to add up that total, but just give the classes, from $200 up.

Mr. Keefe: 413, 370, 293, 202, 147, 79; those were all the way from $200 to $250.

Mr. Sheean: Then, above $250?

Mr. Keefe: 48, 35, 15, 13, 8, 4; that is, up to $300.

Mr. Sheean: Then above $300 in that month there were 9?

Mr. Keefe: 9 in the passenger class.

Mr. Sheean: In the passenger class?

Mr. Keefe: Yes.

Mr. Sheean: The highest in that class, in passenger service, being $333.33 to $341.65?

Mr. Keefe: Yes.

Mr. Sheean: In the through freight class, total service of the through or irregular freight, there seems to be one man there between $83.33 and $91.65. Is there any explanation of that?

Mr. Keefe: He was a Southern Pacific man; on account of extra tunnel trouble, he was not able to make any greater earnings than $83.58.

Mr. Sheean: Then outside of that one man, in a total of 6,080 employes, the showing begins, between $100 and $108.32, being 250 men?

Mr. Keefe: That is, in the exclusive—

Mr. Sheean: Yes, total service in the through or irregular, 365 men.

Mr. Keefe: Yes.

Mr. Sheean: And where is the largest number in any one of these divisions that you have made, on $100 per year?

Mr. Keefe: 811 engineers drew from $158.33 to $166.65; 771 from $166.66 to $174.99; then 688, 606 and 492; that carries you up to the $200 class. Then above the $200 class is 383, 269, 213, 158, 107 and 96. That is up to $250. Beyond $250 were 57, 41, 31, 19, 14, 9.

Mr. Sheean: That is up to the $300 class?

Mr. Keefe: Yes.

Mr. Sheean: Then above $300, in through freight service, how many were there in that month?

Mr. Keefe: 33.

Mr. Sheean: And running up in the highest to the class from $333.33 to $341.65.

Mr. Keefe: No; from $358.33 to $366.65.

Mr. Sheean: There was one man put in the other class between $333.33 and $341.65?

Mr. Keefe: Yes.

Mr. Sheean: This sheet of Exhibit 29, Mr. Keefe, makes distribution into these various classes of all the 49,887 men shown at the bottom?

Mr. Keefe: Yes.

Mr. Sheean: Now, is there anything to which you wish particularly to call attention, in connection with this sheet of the exhibit, or that is necessary to a further understanding of the manner in which it is arrived at?

Mr. Keefe: Nothing as to the further understanding. We have been speaking about engineers. The number of firemen earned above $175 per month, no mention has been made of, but it shows 71, 35, 19, 12, 4, 7 and 4 earning—

Mr. Sheean: Between $175 or above $175 in that month?

Mr. Keefe: Between $175 and $233.32.

Mr. Sheean: Now, on this exhibit, the black faced type are the totals in the various classes of service?

Mr. Keefe: Yes.

Mr. Sheean: And the smaller or lighter faced type show the number of men or—that is the number of men carried opposite each of these classifications?

Mr. Keefe: Yes.

Mr. Sheean: The heavier type showing simply the totals in the service, and also the totals at the bottom?

Mr. Keefe: Yes, sir.

Mr. Sheean: That explains this part of the exhibit, Mr. Keefe, does it?

Mr. Keefe: Yes.

Mr. Sheean: You may cross examine, Mr. Stone.

RE-CROSS EXAMINATION.

Mr. Stone: In arriving at the days, you averaged all the previous hours per day, did you not? Those who were working eight, or ten, or twelve, or fourteen, or sixteen, to show the average days worked?

Mr. Keefe: What statements are you referring to?

Mr. Stone: This statement 26, 7, 8, and 9, where you show the hours per day. Did you take all of the hours and average them, to get it?

Mr. Keefe: No, we take the total number of hours for the month.

Mr. Stone: Take your sheet No. 1, Exhibit 29, line 22. You show an average of 10½ hours per day, for all classes of engineers. How did you arrive at that?

Mr. Keefe: By dividing the number of hours, 632,029.6, shown in the fifth column, by—or dividing that into the 6,607,-750.8 hours, shown on the next, or sixth, column.

Mr. Stone: Then it is a fact that, wherever you even included that man who worked over 23 hours per day, he is added in with the 8, 10, 12 and 14 hours? It is all added together?

Mr. Keefe: The total number of hours is the aggregate of all the hours of all the men.

Mr. Stone: Is it not a fact that you would take the different classes of service, except, of course, passenger—such as through freight, local or way freight, and switching service, the average hours worked per day is more than the general average? It exceeds 10½ hours. For example, take Exhibit 29, sheet 1, in line 9, your hours per day are 11.1, are they not, in through or irregular freight?

Mr. Keefe: Yes, that represents the average hours.

Mr. Stone: In that class of service?

Mr. Keefe: For which they are compensated for the 10,221 that worked 211,322 days, 2,338,262.5 hours, that 11.1 is arrived at by dividing the total number of hours by the total number of days.

Mr. Stone: Well, the same is true of line 13, is it not, for your local or way freight service?

Mr. Keefe: Yes.

Mr. Stone: The average hours is 12.

Mr. Keefe: That is arrived at by dividing the total number of days into the total number of hours.

Mr. Stone: Take your line 17 for yard engines. It is 11.4 hours per day.

Mr. Keefe: Yes, sir, and that is arrived at by dividing the total hours by the total number of days worked.

Mr. Stone: The same is true of pusher and helper service, is line 21? It is 11.6 hours per day?

Mr. Keefe: And the same comparison for firemen.

Mr. Stone: Shows a greater number of hours per day in different classes of service, except passenger, than it does for the average for all firemen, does it not?

Mr. Keefe: Yes, sir.

Mr. Stone: Take your line 21, the average of all firemen in the regular freight service is 11.2?

Mr. Keefe: No, that is not right.

Mr. Sheean: 31.

Mr. Stone: 31 is 11 hours exactly.

Mr. Keefe: Yes, that is the average number of hours for all the firemen that were engaged in the through or irregular freight class.

Mr. Stone: And the same is true in local or way freight. It is 11.7 hours, line 32.

Mr. Keefe: That is the firemen entirely in local or way freight service.

Mr. Stone: Yes.

Mr. Keefe: Yes, sir.

Mr. Stone: And the same is true in regard to yard service. It is 11.4 hours; line 36?

Mr. Keefe: 11.4.

Mr. Stone: The same is true in pusher, helper, wreck service, and so forth; it is 11.4?

Mr. Keefe: That is, firemen, pusher, helper, work train service, etc., entirely.

Mr. Stone: Yes?

Mr. Keefe: Yes.

Mr. Stone: So, in order to get your average of a percentage, you add in all the fast passenger runs to get the daily average of ten hours and something?

Mr. Keefe: It shows separately by each class. The figures are shown here separately in each class, and it is also shown by the total. In order to get the totals of all the classes you had to take into consideration all of the classes.

Mr. Stone: Do I understand that this Exhibit 29 is based entirely upon the information found in Exhibits 26, 27 and 28?

Mr. Keefe: Yes.

Mr. Stone: It is simply a summary of these three exhibits?

Mr. Keefe: Yes, sir.

Mr. Stone: In estimating the average hours per day or per trip in these three exhibits, 26, 27 and 28, the three books, did you include the time required by the railroads for engineers and firemen to be on duty before departure of trains and after arrival of trains where the existing rules require no compensation for the same?

Mr. Keefe: I don't understand that there was any estimate arrived at, or that it is an estimate at all. It is the actual number of hours for which the men were compensated.

Mr. Stone: In this list for firemen here, does it include the negro firemen employed on the Southern division of the Illinois Central Railroad, on Exhibit 28?

Mr. Keefe: I am unable to say definitely, Mr. Stone, whether it does or not, but I assume it does, because it is shown on their payroll, and I take it they show all the men that were on their payroll.

Mr. Stone: Can you indicate on the list for the Southern division of the Illinois Central which are white firemen and which are negroes? Can you indicate anything on Exhibit 28?

Mr. Keefe: No, I cannot.

Mr. Stone: Coming back to that question of average hours per day, then you admit that the hours used in preparatory work before departure and after arrival are not shown on your estimates of this exhibit at all?

Mr. Keefe: I do not admit that there were any estimates at all, Mr. Stone.

Mr. Stone: I say you admit they are not in the estimates, do you not?

Mr. Keefe: There are no estimates as to the number of hours, Mr. Stone. I have said that these exhibits, 27, 28 and 29, are not estimated hours. Wherever they are to receive compensation—any hours they receive compensation for are included in there, without it being estimated as to the actual number of hours.

Mr. Stone: The actual hours per day and per trip is an estimate, is it not?

Mr. Keefe: No, sir.

Mr. Stone: What is the meaning of the reading of average hours per day or per trip?

Mr. Keefe: That is no estimate at all. It is a calculation by taking the different totals.

Mr. Stone: What is the difference between a calculation and an estimate?

Mr. Keefe: To my mind there is considerable.

Mr. Stone: All right, we will call it a calculation then, if that will suit you better. It is a calculation that you arrive at?

Mr. Keefe: By taking the actual total number of hours and dividing it by the number of days in which he worked that number, or the number of trips in which he made it.

Mr. Stone: You get a better calculation from your point of view by doing it that way?

Mr. Keefe: I get what is shown to be actual conditions.

Mr. Stone: Does it include the hours or show the hours in any way that the men give before departure or after arrival, for which they receive no compensation?

Mr. Keefe: It does not.

Mr. Stone: Why do you show estimated earnings of engineers and firemen in all classes of service, such as switch service or mine or wreck services, and then not show simply the earnings of hostlers who work part of the time as hostlers and part of the time in other terminal work?

Mr. Keefe: I cannot subscribe to the statement that there is any estimate here at all in the way of earnings, Mr. Stone. If you will change your question so as to eliminate the estimated earnings.

Mr. Stone: It should be estimated earnings when you add what he earned as a fireman and what he earned as an engineer together. That must be the estimated earnings in the two classes.

Mr. Keefe: I don't so consider it at all.

Mr. Stone: We will call it another calculation, then.

Mr. Keefe: It is his compensation that he received in both classes of service.

Mr. Stone: All right. Why don't you show the compensation for hostlers who worked part of the time in other terminal work?

Mr. Keefe: Our instructions did not provide for that com-

putation, as you will notice by looking at the bottom of the instructions, on the back of the sheets of Exhibit 25.

Mr. Stone: I noted that long ago.

Mr. Keefe: "If a man was employed as hostler and also as a shop man, his wages should be omitted."

Mr. Stone: Why did you instruct the railroads if a man was employed as a hostler and also as a shop man that his wages should be omitted? Was the average going to be too low, or what was the trouble?

Mr. Keefe: We did not know what the average was going to be, but in order to save any confusion and to make certain that our investigation should be complete, that there would be no question about it, we wanted to show all of the hostlers who were considered as hostlers, but where they were shop men and doing hostler work they were not shown in here, because they would not be shown on the hostling payroll.

Mr. Stone: Are we to understand that sheet No. 1 of Exhibit 29, includes the wages paid to every man reported in Exhibits 26, 27 and 28?

Mr. Keefe: Yes, sir.

Mr. Stone: Or a total of 63,624 men?

Mr. Keefe: Yes, sir.

Mr. Stone: Then, sheet 2 shows only 51,596 men, and are we to understand that these 12,028 men were not available for duty at some time during the month of October, 1913?

Mr. Keefe: Yes, sir; they were not available for duty the entire month, and the lists giving the individual names and railroads, and the reasons why, are shown on sections Nos. 39 and 40, of Exhibit 28.

Mr. Stone: In this 12,028 men that were not available for duty, does that include engineers and firemen who were off during the month for rest, or because of illness, or from other causes which are excluded from sheet 2? If a man became worn out and had to have rest, would he be listed as unavailable during the rest of the month?

Mr. Keefe: If he made less than $100 as an engineer, or $70 as a road fireman, or $65 as a yard fireman or hostler, during the month of October, and laid off from further service of his own accord for any reason he might care to give, he might not be shown in sheet No. 2.

Mr. Stone: Then, in the make-up of this sheet and the general average of the other sheets, nothing is taken into consideration in regard to the human machine becoming tired out or worn out; you simply show the men who are ready to work all the time, if need be, for the month?

Mr. Keefe: No, sheet No. 2 leaves out of consideration the men who did not avail themselves of the opportunity afforded them by the companies to earn additional compensation; whatever that reason was, they were not included.

Mr. Stone: Then, it is a fact that you do not recognize that there is such a thing as a man becoming tired out and laying off for rest, in this exhibit?

Mr. Keefe: I have not said that at all, Mr. Stone.

Mr. Stone: A man might be available for duty as soon as he could get rested up again, but men do require rest at times, do they not, in this heavy service?

Mr. Keefe: They lay off for rest, yes, sir.

Mr. Stone: Your sheet No. 3 shows 49,887 men; are we to understand from that, that 1,709 men were on the extra list?

Mr. Keefe: There were 1,709 men on the extra list who made earnings less than $100 as engineer, $70 as road fireman, $65 as yard fireman or hostler.

Mr. Stone: Then it is true that sheet 4 makes no report for 13,737 men?

Mr. Keefe: If that is the difference between the total of sheet No. 3 and sheet No. 1, yes.

Mr. Stone: Then, in the information you give on sheet 4, showing these high earnings, you disregard the earnings of about 21 per cent of the men affected by this wage movement?

Mr. Keefe: No, I did not consider they are all affected by this wage movement entirely, because there are a lot of those emergency men, as you will note by looking at the detailed explanation, as to way they were excluded, quite a large number of the men entered service the last few days of the month; a number of them left the service during the month, without terminating their services entirely; there were a lot of them that were emergency men, men working in the roundhouse or emergency service, that worked probably a few days in the service. The details as shown in Sections Nos. 39 and 40 of Exhibit 28,

give all the details as to why these men were not available. None of those men are included in sheet No. 4 of Exhibit 29.

Mr. Stone: But the fact remains that the showing that you make, that you had to use these men, goes to show that everybody was worked up to about the limit of human endurance, and you had to keep constantly adding new men, in order to handle the traffic?

Mr. Keefe: I do not infer that at all.

Mr. Stone: They would not employ a lot of new men if they had not any use for them, would they?

Mr. Keefe: There were some requirements of the business that necessitated them putting those men in service.

Mr. Stone: Occasionally, you will see here, where a shop man went out on an emergency trip, or something of that kind; you see a man worked thirteen or fourteen days and resigned. Do you not always have that, when there is a period of heavy business, or heavy rush of business, and heavy traffic conditions?

Mr. Keefe: It does not necessarily take heavy months of business, or heavy traffic conditions, to show that situation. That is often shown in months of depression.

Mr. Stone: It would be greater, though, would it not, when business was heavy?

Mr. Keefe: There would be more new men come into the service, yes, when the business was heavy.

Mr. Stone: In making up the estimate for the month, why is it not fair to include all men in the service?

Mr. Keefe: I made up no estimate for any month.

Mr. Stone: Well, a calculation for the month, then; why would it not be fair to use all the men who were on the payroll, in the calculation?

Mr. Keefe: We have made an exhibit, sheet No. 1, that shows every man, regardless of the length of time he was employed. We have supplemented that with additional sheets which, in our opinion, are a more correct and proper representation of what these men actually received.

Mr. Stone: If the hostlers who worked part of the time as hostlers and part of the time in other terminal work, such as shop men and so on, had been included, it would probably have brought the list of men who were not represented up to about 25 per cent, would it not?

Mr. Keefe: I have not any idea. I doubt whether it is anywhere near that figure, however.

Mr. Stone: 21 per cent is not shown on sheet 4, but on sheet 1, so it only needs 4 per cent more.

Mr. Keefe: Those are not hostlers.

Mr. Stone: I understand that. You show on sheet 4 that only 7 engineers earned less than $100 a month, and only two firemen earned less than $50 a month. Are we to understand that a large portion of the 13,737 men not accounted for in sheets 3 and 4, earned much less than is shown on sheets 3 and 4?

Mr. Keefe: The question is rather mixed, Mr. Stone.

Mr. Stone: Is it?

The Chairman: I did not catch that.

Mr. Keefe: The question is mixed.

Mr. Stone: I will try it again. Are we to understand a large portion of the 13,737 men not accounted for in sheets 3 and 4 may have earned much less than shown here—that is, $50 for firemen, and $100 for engineers?

Mr. Keefe: You do not mean sheets 3 and 4; you mean sheets 1 and 2, do you not? You are talking about sheet No. 4 now, and—

Mr. Stone: I am talking about sheet No. 4. You show 7 engineers that earned less than $100.

Mr. Keefe: Yes.

Mr. Stone: And you show two firemen that earned less than $50?

Mr. Keefe: Yes.

Mr. Stone: What was the average earning of these 17,730 men, not accounted for on this sheet? Have you any idea?

Mr. Keefe: I have not made any calculation, but it is a very simple one to make.

Mr. Stone: Is it less than $50 for firemen and $100 for engineers?

Mr. Keefe: I have not made any calculation at all. It is a question of a few minutes to make it, though, by just deducting the difference in the number of men and the amount of money, and you obtain it.

Mr. Stone: I think that the figures would be surprising, if you did work it out?

Mr. Keefe: The details of Sections 39 and 40, Exhibit No.

28, shows the amount of salary received by each of the men that were not included in these sheets No. 3 and 4 of this Exhibit 29.

Mr. Stone: 39, 40 and 41 are not included in this exhibit at all?

Mr. Keefe: Correct.

Mr. Sheean: Not included in sheets 3 and 4.

Mr. Keefe: They are included in sheets 1 and 2, but not in sheets 3 and 4.

Mr. Stone: And we are to understand, if I got you correctly, Mr. Keefe, that the information found in Exhibits 26, 7 and 8, shows all the wages that were paid to all the engineers, firemen, hostlers, motormen and motormen's helpers, in the accounts of the railroads participating in this Arbitration?

Mr. Keefe: In the month of October, 1913, yes.

Mr. Stone: In Sheet 4 of this Exhibit 29, you classify engineers, firemen, hostlers and motormen into certain groups, earning specified wages for the month. Did you make a similar classification as to hours worked per day, in any exhibit?

Mr. Keefe: No.

Mr. Stone: Such a classification, if made, would show men in certain classes of service worked a much higher number of hours than 10½, which you show as the average for all, would it not?

Mr. Keefe: It would show the information that is given in detail in Exhibits 26, 27 and 28.

Mr. Stone: Then this average, which is based by computing the short hours in passenger service and the long hours in freight service, does not actually show the real distance for the freight service, does it?

Mr. Keefe: It shows the average number of hours that all men in that class of service were compensated for, in the month of October, 1913.

Mr. Stone: But a classification of the numbers of engineers and firemen, working a specified number of hours per day, in certain groups, would show considerably longer hours than that, if you had worked out the classification by hours, according to service?

Mr. Keefe: It would show some engineers worked longer than 10½ hours, yes, but how many, or what percentage, I do not know. I have made no computation of that character.

Mr. Stone: I wish you would explain for me, if you will, in detail, so I can understand the average number of hours per day, in the sixth column of Sheet 1, Exhibit 29, and the average time per train on road, Exhibit 10, Sheet 2.

Mr. Keefe: What was that first question?

Mr. Stone: Sixth column of Sheet 1, Exhibit 29, average hours per day.

Mr. Keefe: The average hours per day, yes.

Mr. Stone: Now, I want you to explain the difference between that and the average time per train on road in Exhibit 10, Sheet 2.

Mr. Keefe: That is in through freight service, I take it?

Mr. Stone: Yes.

Mr. Keefe: The number of hours—I will start in by explaining what is the average hours per day of the engineers, entirely in through or irregular freight service, which is 11.2 hours, as shown on line number 6. That is arrived at by dividing the total number of hours for which engineers were compensated in that class of service, the details of which are shown in Section No. 5, Exhibit No. 26. That includes their total compensated hours, and the number of days that they were engaged, divided into that total number of hours, gives the average of 11.2.

Mr. Stone: And that same principle is applied to each class of service, is it, in arriving at the hours?

Mr. Keefe: Yes; and in Exhibit No. 10, Sheet No. 2, an average of 9.31 hours is the average hours between terminals, operated by through freight trains only, as defined in the instructions for through trains, namely, through trains that run over their entire district.

Mr. Stone: That district was 112.6 miles, in October, 1913?

Mr. Keefe: 112.6.

Mr. Stone: And the average time was 9.31 hours, is that right, at the bottom of the page?

Mr. Keefe: Yes.

Mr. Stone: When we get over here, we find it is 11.2.

Mr. Keefe: That is their compensated hours, yes, sir.

Mr. Stone: What is the difference between the two figures?

Mr. Keefe: The one of them shows the hours they were

compensated for, such as your terminal delay and preparatory time, where, in the second sheet of Exhibit No. 10, it shows only the time between terminals, as per the instructions contained on the sheet.

Mr. Stone: Do you understand enough of these roads in Western territory pay for terminal delay sufficient to make that difference on all of the trains run in freight service during the month?

Mr. Keefe: Exhibit No. 1 of Mr. Bremerman shows the roads that have rules as to preparatory time and initial terminal delay, as well; also final terminal delay.

Mr. Stone: Then, is it safe to assume that men in that class of service are paid an average somewhere near two hours, the difference between the two—an hour and a half each trip, each day? The difference between 9.31 and 11.2? Is it fair to assume that difference is paid in preparatory time, each trip, each day?

Mr. Keefe: Not necessarily preparatory time. There is terminal delay.

Mr. Stone: Well, preparatory time and terminal delay. Is it fair to assume that makes up the difference between the two?

Mr. Keefe: The difference is made up by the added number of hours which they are compensated for, in addition to the number of hours actually between terminals.

Mr. Stone: That is, 1.6 hours per day then; is that correct —the difference between the two?

Mr. Keefe: The difference between the two is 1.6 hours per day, on an average, for all freight trains run.

Mr. Stone: The difference between the two figures is 1.6 hours?

Mr. Keefe: Yes, sir.

Mr. Stone: Do you have, in any of your exhibits, Mr. Keefe, one that shows any data as to the actual number of hours per day locomotive engineers and firemen are in service, from the time they are called to report for duty, until they are released?

Mr. Keefe: There are no other exhibits prepared which indicate the number of hours that they are either compensated for, or for which they worked, other than shown in these exhibits already introduced.

Mr. Stone: In Exhibit 29, line 44, sheet 1, you show that all firemen averaged 19.8 days per month. Is that correct?

Mr. Keefe: That is the average number of days per month for every fireman that worked in the month of October, regardless of the number of days or the length of time. In other words, the 32,321 men who were in the firing service in October, 1913, worked a total of 638,863.1 hours, and averaging them up on the basis of each man, it would be 19.8 days. That includes those emergency men who worked one, two, three or four days, or any man who worked, in some instances, even half a day, I notice.

Mr. Stone: You also show in the same exhibit, on line 22, that the average days per month for all engineers is 22.2, do you not?

Mr. Keefe: Yes, sir. That, likewise, is made up of the same calculation. That is considering every engineer who worked any part of the month of October, as an engineer.

Mr. Stone: Confining comparison to firemen in freight service, on line 31, I find there that the average days per month for firemen is 18.1. How do you account for this, that the showing is so much less for firemen than it is for engineers?

Mr. Keefe: By the fact that the firemen are more irregular in their employments than are the engineers, as indicated by Section No. 40, of Exhibit No. 28. They are more—

Mr. Stone: What is the explanation? Because of the heavy service, the hours of work so irregular, or what?

Mr. Keefe: No, they come and go more frequently. That is, they work a few days and then quit, or come in at the end of the month and work a few days. The details are shown on that section No. 40. There is more emergency service in connection—

Mr. Stone: Well, it could not be possible, in that month, that there was any scarcity of work for firemen, because you were constantly adding emergency men on account of the traffic.

Mr. Keefe: There were a lot of men who were employed and released throughout the month, left the service of the company, and entered the service of the company, throughout the month.

Mr. Stone: Clearly showing what? That they could not stand the heavy work of firing the modern locomotive. Wasn't that it?

Mr. Keefe: No, sir.

Mr. Stone: Didn't like the job?

Mr. Keefe: There is no inference to be made of that character from the exhibit that is presented.

Mr. Stone: There must be some reason for the fact that you had to carry a much larger number of firemen on the list all the while, than you do engineers. You are carrying some three thousand more firemen than engineers.

Mr. Keefe: There were that many more firemen in the service than there were engineers.

Mr. Stone: I don't imagine that they were in the service unless they were working occasionally during each month. You don't think the traffic had anything to do with it, or the heavy, difficult work of the firemen had anything to do with these men working more irregularly?

Mr. Keefe: I will refer you to sheet No. 1802 of Exhibit 2, which shows that on oil-burning roads, roads that use oil as a fuel, where there is no manual labor or physical labor, that they have the same situation, of firemen coming and going throughout the service.

Mr. Stone: It cannot be possible that a man who has a snap like that, just simply turning an oil faucet, is going to lay off of a pension job, is he?

Mr. Keefe: There is no attempt made to ascertain why a fireman, or engineer for that matter, is laying off in this month, or any other month. It just simply shows the facts, that men lay off where there is no possibility of it being due to difficult or manual labor in connection with their position.

Mr. Stone: Then does it not clearly prove, Mr. Keefe, that even under those splendid conditions we hear about with oil burners, there must be some condition that makes men want to lay off, tires them out. It cannot be long hours, because they don't have any, by this showing, so it must be something else.

Mr. Keefe: It's simply coming and going of labor, which is not unusual in train and engine service.

Mr. Park: Does it show that the same portion of laying off occurs in passenger service, or have you separated that?

Mr. Keefe: There is a separation there as to men laying off from passenger service. Those that are entirely in passenger service, and those in freight service, but I haven't even looked

at the exhibit to see whether it shows that any small percentage lay off in one class of service compared with another.

Mr. Stone: Mr. Keefe, does it look plausible to you that a fireman will go through all this trouble of passing a rigid physical examination and all the other examinations it requires, in order to obtain a job of firing, and then resign and go away and leave it, without there are some objectionable features to it?

Mr. Keefe: It does not necessarily imply any objectionable features to a man entering and leaving railroad service. There are men leaving and entering all walks of life, in all classes of service, for all reasons; not necessarily any objectionable ones.

Mr. Stone: Did you make any comparison of the number of days worked by engineers and firemen in October, 1910, as compared to October, 1913?

Mr. Keefe: I did not.

Mr. Stone: Would it be possible, from the data you have at hand, to give us that information?

Mr. Keefe: The information for October, 1913, is shown in these compilations here, these three exhibits. To get the same information for October, 1910, would be a similar undertaking. I have not attempted, nor has our committee attempted, to make or compile a similar exhibit. One month was about all we had time to undertake.

Mr. Stone: I note you show here in Sheet No. 1 of Exhibit 29, that the average earnings per day for all engineers is $6.73. Is that correct?

Mr. Keefe: Considering every engineer who worked any part of the month, that is correct.

Mr. Stone: And for firemen it was what? five dollars and—

Mr. Keefe: $4.27, as shown on line 44.

Mr. Stone: $4.27?

Mr. Keefe: Per day.

Mr. Stone: How do you reconcile that, Mr. Keefe, with the statement of the same railroads to the Interstate Commerce Commission, that shows the average daily wage of an engineer in the Western territory as being $5.25 and of firemen $3.33?

Mr. Keefe: May I ask for what period of time those figures you quote are shown?

Mr. Stone: The year ending June 30, 1913.

Mr. Keefe: They represent a fiscal year's operation?

Mr. Stone: Yes.

Mr. Keefe: This represents a month's operation, and they are upon an entirely different basis, as I understand it.

Mr. Stone: Then that would indicate that in that month it was about—you show a higher average than is reported for the entire year, so it must be much higher in that particular month.

Mr. Keefe: No, sir, I do not infer that at all.

Mr. Stone: I know you did not infer it, but I am trying to reconcile the two figures.

Mr. Keefe: They are upon an entirely different basis of compilation. There is no similarity at all.

Mr. Stone: I agree with you on that; there is no question about that.

Mr. Keefe: These figures are the actual figures for the month of October, 1913.

Mr. Stone: Then what are the figures they swore to under oath to the Interstate Commerce Commission?

Mr. Keefe: I have not examined them and do not know what figures you are referring to at all.

Mr. Stone: I am referring to their statement made to the Interstate Commerce Commission.

Mr. Keefe: I do not know anything about those figures and am not testifying about those figures.

Mr. Stone: Then you have no explanation to offer as to the discrepancy between the two?

Mr. Keefe: I would not want to attempt to offer any explanation until I had, at least, an opportunity of knowing what those figures are which you are reading from.

Mr. Stone: The fact remains that you show an average daily wage of $1.48 per day for engineers higher than the records of the Interstate Commerce Commission show, and the fact remains that you show 94 cents a day higher for firemen than the Interstate Commerce Commission show, a difference of about 28 per cent. If your figures are correct, and you understand I am not questioning your figures, then it clearly demonstrates to my mind, at least, that the earnings of the engineers and firemen were higher in October than in other months of the year.

Mr. Keefe: These figures show what the earnings were per man, per day, in the month of October, 1913.

Mr. Stone: Is not this conclusive proof that the financial effect of our wage requests, as computed by you, on the month of October, 1913, set forth in your Exhibit No. 3, would be much larger, or, in other words, more money would be required to meet the increases requested on the basis of October, 1913, than for the other months of the year, 1913?

Mr. Keefe: No, sir.

Mr. Stone: In Exhibit 29, sheet No. 4, you show 1,055 engineers earned from $200 to $208 per month. It is line 21, is that correct?

Mr. Keefe: No, sir.

Mr. Sheean: Line 22.

Mr. Stone: Line 22, 1,055 engineers in different classes of service, earned over $200 a month; is that right?

Mr. Keefe: Their earnings ranged between $200 and $208.32.

Mr. Stone: Somewhere between those two points?

Mr. Keefe: Yes.

Mr. Stone: What percentage is this of the 24,639 engineers employed during that month? A little over 4 per cent, is it not?

Mr. Keefe: In round figures, I take it, yes.

Mr. Stone: About 4.3 per cent?

Mr. Keefe: Between 4 and 5 per cent of the engineers earned between those amounts, $200 and $208 only.

Mr. Stone: And 865 engineers were so fortunate as to earn between $208.32 and $216.65?

Mr. Keefe: Yes.

Mr. Stone: That is only about 3½ per cent of the total number, is it not?

Mr. Keefe: If you have made that calculation.

Mr. Stone: Well, just roughly. It is somewhere near that.

Mr. Keefe: Something less than 4 per cent.

Mr. Stone: You show that 634 engineers earned between $216.66 and $224.99; 461 from $225 to $233.32; 343 from $233.33 to $241.65; 227 from $241.66 to $249.99; or in the aggregate, 1,665 men earned rates of over $216.66 to $249.99, or less than 7

per cent of the total number of engineers employed during the month; is that correct?

Mr. Keefe: I have not verified the figures. That is approximately the number of the men who earn between those figures, $216 and $249.

Mr. Stone: It would appear from this exhibit that the rates of pay for engineers in October, 1913, ranged in some cases from $250 to $366.65. If my calculations are correct, I find that in the aggregate only 434 engineers of the 24,639 shown on this sheet, succeeded in earning as high as 250 during the month. That means only 1.8 per cent of the total. I also note from this exhibit—is that percentage correct?

Mr. Keefe: How many in the aggregate, did you say?

Mr. Stone: 434, beyond $250.

Mr. Keefe: Somewhere between 450 and 500 engineers, roughly figuring, earned in the month of October, salaries of $250 and over.

Mr. Stone: Or approximately 1.8 per cent.

Mr. Keefe: Practically 2 per cent.

Mr. Stone: So that 98.2 per cent earned less than $250?

Mr. Keefe: It shows here for itself, what each of the men secured, Mr. Stone.

Mr. Stone: I also note from this same exhibit, if my figures are correct, and I believe they are, that 12,386 engineers earned less than $166.65.

Mr. Keefe: How many?

Mr. Stone: 12,386, I have it.

Mr. Keefe: I have not computed it. I can ascertain that and check these figures, if you wish me to take time to do it. I will accept your figure, however.

Mr. Stone: I think you will find it approximately correct.

Mr. Keefe: Yes.

Mr. Stone: Or, in other words, more than 50 per cent of the total earned less than $166.65.

Mr. Keefe: There is practically 50 per cent of the men who received more than $185; 11,861 out of the 24,639 received more than $185.

Mr. Stone: That is not more than 50 per cent.

Mr. Keefe: Nearly 50 per cent, it is over 48 per cent. 48.14

per cent received more than $185. I have that calculation made up. That is the only one I have.

Mr. Stone: I also have another calculation, that 10,461 engineers earned less than $150, or more than 42 per cent of the total. Have you made that calculation?

Mr. Keefe: I have not.

Mr. Stone: I think you will find the figures are correct, if you do make it. I note in this same sheet 4, column 44, you show that 410 firemen employed in October, 1913, earned from $150 to $158.32.

Mr. Keefe: $4.10, yes.

Mr. Stone: The number who were so fortunate to earn these rates amounted to only 1.8 per cent of the total of 22,998 firemen employed during the month?

Mr. Keefe: Practically 2 per cent of the entire firemen earned between those spreads, namely, $150 and $158.32.

Mr. Stone: And only 223 firemen earned $158.32 to $166.65?

Mr. Keefe: Yes.

Mr. Stone: That is less than 1 per cent of the total, is it not?

Mr. Keefe: Approximately 1 per cent; just a shade under 1 per cent.

Mr. Stone: And 123 firemen earned $166.66 to $174.99?

Mr. Keefe: 121.

Mr. Stone: 123.

Mr. Keefe: 121.

Mr. Stone: Is it? Then they made a mistake in the figures. That is only .5 of 1 per cent.

Mr. Keefe: That received between those salaries, yes, sir, $166 to $174.

Mr. Stone: And only 3 earned from $175 to $183.33, and only 1.5 earned from $183 to $191, and only .8 of 1 per cent earned from $191.66 to $199.99. You show that 12 firemen earned from $200 to $208.32.

Mr. Keefe: Yes, sir.

Mr. Stone: That is much less than one-half of 1 per cent of the total, is it not?

Mr. Keefe: It is more than half of 1 per cent.

Mr. Stone: No.

Mr. Keefe: Yes.

Mr. Stone: What is 1 per cent of the total?

Mr. Keefe: 22.

Mr. Stone: Guess again.

Mr. Keefe: 22.988. But 12 is more than half of 1 per cent.

Mr. Stone: Are you sure of that percentage, Mr. Keefe?

Mr. Keefe: 12.22998,—I haven't made any calculation. It is more than one-half of 1 per cent.

Mr. Stone: 22.998.

Mr. Keefe: More than one-half of 1 per cent.

Mr. Stone: No, figure it again. 229 is one percent, is it not? .1 of 1 per cent. It is getting down so infinitestimally small that you did not notice it.

Mr. Keefe: Yes, more than one-half of .1 of 1 per cent, then. I will put it that way.

Mr. Stone: I agree with you. The rate of $215.65 was only earned by 4 firemen; less than .02 of 1 per cent of the total amount.

Mr. Keefe: That earned between that particular rate, yes.

Mr. Stone: And 11 firemen who were so fortunate to earn as high as $216.66; amounted to less than .05 of 1 per cent, and these are the regular men, you know. I understand these figures do not include the extra men and those were off on leave of absence, from whatever cause?

Mr. Keefe: That last .05 of 1 per cent is wrong.

Mr. Stone: What should it be, four and three-quarter one-hundredths of 1 per cent?

Mr. Keefe: No, it is the same as the other. The four men earned between $233.32 and $224.99, and seven men earned between $216.66 and $224.99.

Mr. Stone: Then it is .02 of 1 per cent, instead of .05 of 1 per cent?

Mr. Keefe: I have not figured it out, Mr. Stone.

Mr. Stone: Well, I will give you the difference between them.

Mr. Keefe: Whatever it is.

Mr. Stone: It appears from your statement here, Mr. Keefe, if I figured it correctly—(and I have no desire to make any mistakes on the figures) that the rates you show for October, 1913, for firemen, range as high as $225, but the number who actually earned $150 or more, amounted to only 906 men

out of a total of 22,998, or less than 4 per cent of all the firemen employed during the month. Is that correct?

Mr. Keefe: Between 900 and 1,000, somewhere in there, that earned more than $150 as firemen.

Mr. Stone: And while you show this very small percentage of firemen who, in that month, earned as high as $150, it is a fact, is it not, that 11,523 firemen, or more than 50 per cent of the total number employed, earned less than $100 in the best month in the last five years?

Mr. Keefe: I have not added up the number of men that earned less than $100.

Mr. Stone: I think you will find the figures correct. It is also a fact that you will find 8,354 firemen, or 36.3 per cent, earned less than $91.65 per month?

Mr. Keefe: The statement shows the number of men that earned in each group of earnings, Mr. Stone.

Mr. Stone: You have got to make a computation or a calculation, rather—

Mr. Keefe: Not an estimate.

Mr. Stone: No, it is not an estimate, it is a calculation. So that from your own figures it must be true that, while 906 firemen, or 3.9 per cent, earned as high as $150, 2,165 firemen, or more than 9 per cent of the total, earned less than $75.

Mr. Keefe: I assume that your calculations are correct, Mr. Stone, but it is also true that there were 22,998 firemen who each received an average of $103.35.

Mr. Stone: What would it have shown had you added the large number that earned less than $50?

Mr. Keefe: Shown on Exhibit No. 1. If every man who worked, even if it was only a fraction of one day, was counted the same as a man who worked 31 days, the average earnings for every man would have been $84.34, for 32,321 men.

Mr. Stone: Yes, I know that exhibit reads good, but if you had read that to some fellow who only made $25 or $30, you would have had an awful time making him believe he got $84.

Mr. Keefe: The payrolls speak for themselves.

Mr. Stone: The fact that some other man got that money, does not do the man any good who did not draw it from the pay car. They recently had a case in the east, where there were four men. Number 1 was given five meals, number 2 was

given four, and number 3 was given three. The fourth man got none. There were twelve meals and the average for all was three, but they had an awful time making the fourth man believe he had any meals.

Mr. Sheean: Did they have seniority rules on the meals?

Mr. Stone: Yes, they had seniority rules.

Mr. Sheean: That is what brought that about.

Mr. Phillips: But not first in first out.

Mr. Stone: And he didn't lay off of his own accord, either.

Mr. Stone: What is the reason, Mr. Keefe, in hurriedly checking over this exhibit of the Engineers, that I find a number of engineers in freight service are left out of the Southern Pacific? Do you offer any explanation as to how it happened? I am informed by our Chairman, who has made a careful check, that a great many of the men have been left out of the names in freight service.

Mr. Keefe: I think there is some mistake about that, because it agrees with the payroll and balances with the payroll. If you can give me the name of any man I will be glad to have it looked up, but this is a copy of the payroll and if they drew any wages in 1913 it would be shown in this exhibit.

Mr. Stone: This is a correct copy of the payroll for that month, is it?

Mr. Keefe: Yes, sir.

Mr. Stone: I also note on section 14 on page 658, in the Hostlers, in regard to the helper service—section 14 it is—Engineers in helper service, if I have computed correctly the engineers in helper service, it shows a total of 73. In your exhibit showing the classification of engines, you show 224 engines in helper service.

Mr. Keefe: On what railroad was that?

Mr. Stone: The Southern Pacific.

Mr. Keefe: What sheet number there, Mr. Stone?

Mr. Stone: Why, 658. This was undoubtedly one of the heaviest months they had, and the helpers were probably up to the maximum, yet, if you make a computation, or they counted correctly, you only show 73 men in helper service.

Mr. Keefe: On the entire Southern Pacific?

Mr. Stone: Yes.

Mr. Keefe: Those were engaged in pusher and helper

service. Did you look at section No. 15, also section 16, men that may have been engaged in helper service a portion of the time?

Mr. Stone: No, I did not.

Mr. Keefe: For instance on sheet No. —

Mr. Stone: They are shown here, are they?

Mr. Keefe: Yes, you take over on sheet 698, you will find a number of men there that were employed in the helper service also. Also by referring to Section No. 16, you will find, I believe—Yes, you will find some men also engaged in helper service. And probably by referring to sections Nos. 30, 31 and 32 of the Firemen, you may find some firemen there who, for part of the time, did some engine running, did some running as engineers in helper service, but whose greater wages were as firemen. They are all accounted for, Mr. Stone.

Mr. Stone: On page 1,678 of the Hostler book, on the Ft. Worth Division of the International & Great Northern, you show G. Batt and J. H. Bartlett, at Ft. Worth as hostlers, earned $145 and $141 respectively. Is it not a fact that under their agreement both of those men are making main line movements between the roundhouse and the station, and are paid regular switching rates?

Mr. Keefe: I don't know, Mr. Stone: That is the amount of money that each of those gentlemen drew in October, 1913.

Mr. Stone: In your electric service on page 1,651, on that Tye-Cascade tunnel, that is standard steam pay, is it not, for this motorman?

Mr. Keefe: I am not certain, but it is my recollection that the schedule provides for standard steam pay, but I am not positive on that, Mr. Stone: Exhibit No. 1 will show that, I believe, accurately.

Mr. Stone: On the fourth district of the Oregon Railway & Navigation Company, you show one of the motormen there $152.02. Do you understand that he worked as a motorman all the month?

Mr. Keefe: No, he was motorman for twenty days, made forty trips, 2,240 miles, for which he received an average of 9.5 hours per day, 4.7 trips, $82.60. He was an engineer eleven days; made 22 trips, 1,500 miles, average of 11 hours a day, for which he received $69.42, or a total compensation of $152.02.

Mr. Sheean: Mr. Stone's question was about one man and you are telling about another, as I get the figures.

Mr. Keefe: No, I understood him to say Mr. Hawn, the $152.02 man.

Mr. Stone: That is right. This morning, in discussing one of these cases, Mr. Keefe, on the— the case was that of Fireman A. Richardson, who made $209, made 5,547 miles. I have forgotten what road, I think it was the Santa Fe. Is it not a fact that 100 miles or less is the basis of a day's pay in every class of service?

Mr. Keefe: On the road?

Mr. Stone: Yes, on road service, I mean; outside of yard service.

Mr. Keefe: Generally speaking, that is my understanding.

Mr. Stone: Then, is it not a fact that a man who runs 5,500 miles, or 6,000 miles, has really given fifty-five or sixty days' service, the equivalent of it?

Mr. Keefe: He has made that many miles, for which he is compensated.

Mr. Stone: Well, if a man was working for you by the hour and you paid him $5.00 for each ten hours, and he worked twenty hours in a day, would you call it one day's work or two days?

Mr. Keefe: Read the question.

(Question read by the reporter.)

Mr. Keefe: One day's pay.

Mr. Stone: You would pay him ten dollars, wouldn't you?

Mr. Keefe: Yes, for which he worked one day for ten dollars.

Mr. Stone: You would not consider he worked two days then, under the schedule he was working under?

Mr. Keefe: He would be paid for twenty hours' work.

Mr. Stone: That would be two days, wouldn't it?

Mr. Keefe: It would be twenty hours' work.

Mr. Stone: If a man ran 400 miles in one day, is that one day?

Mr. Keefe: It is 400 miles.

Mr. Stone: And you figured in averaging up, it is all one day's work in getting these averages?

Mr. Keefe: If he made his 400 miles on one day, it would

be shown he made 400 miles, received compensation for 400 miles, and worked one day, if those were the actual facts.

Mr. Stone: You stated this morning that if crews did not make 2,600 miles they were guaranteed or paid that amount, whether they ran them or not. Then you show here, on the Southern Pacific, where some men only ran a few miles, on account of some tunnel trouble, or something. What is the reason they did not get their guarantee?

Mr. Keefe: I don't know whether they have a guarantee on that road or not, Mr. Stone.

Mr. Stone: I think that is all.

RE-DIRECT EXAMINATION.

Mr. Sheean: Mr. Keefe, do you know of any roads in which the actual day is made use of in the wage schedules, with the exception of the Southern Pacific, which has some stipulation about starting a certain number of trips on certain calendar days?

Mr. Keefe: I do not recall any schedules that contain any reference whatever, to a day, any more in the road service.

Mr. Sheean: And they are paid for the miles, or for the hours, whichever is the greater?

Mr. Keefe: Generally speaking, yes.

Mr. Sheean: And on the hypothetical case that Mr. Stone was putting to you here, in case an engineer or fireman is on a run of 200 miles, and makes it in four hours, is there any method of bookkeeping or accounting between the railroad and the men by which they carry the 200 miles as two days?

Mr. Keefe: No, sir; they are paid for the 200 miles.

Mr. Sheean: And frequently run it in three or four hours?

Mr. Keefe: Whatever the schedules of the trains are.

Mr. Sheean: The mileage basis of pay is generally followed out, and with a minimum hourly guaranty to the men, if they do not make on miles more than the minimum guaranty on hours?

Mr. Keefe: Yes.

Mr. Sheean: Now, as to all of these various percentages, as to hundredths or thousandths or fractions of percentages made, you show on Exhibit 29, on sheet 3, as I understand you, that of 24,639 engineers employed in that month, the average payment per man was $162.31.

Mr. Keefe: Yes, line No. 22.

Mr. Sheean: Line No. 22. And of the 24,639 engineers whose average wage was $162.31, how many engineers actually drew more than that average pay?

Mr. Keefe: 11,861 men.

Mr. Sheean: 11,861 men drew more than $162.31 per month, in that month?

Mr. Keefe: Yes.

Mr. Sheean: Or what percentage of the total number shown, drew more than the average wage?

Mr. Keefe: 48.14 per cent.

Mr. Sheean: Now, on this Sheet No. 4, of Exhibit 29, of a total number of firemen of 22,998, you show the average to be $103.35.

Mr. Keefe: Yes, shown on line No. 44.

Mr. Sheean: And of the 22,998 men, how many, in fact, drew more than $103.35?

Mr. Keefe: 10,503.

Mr. Sheean: What percentage is that of the whole?

Mr. Keefe: Approximately 46 per cent.

Mr. Sheean: So that, approximately 46 per cent of the firemen drew more than the average payment shown here, and more than 48 per cent of the engineers drew more than the average shown?

Mr. Keefe: Yes.

Mr. Sheean: Now, I think you said, in answer to one of Mr. Stone's questions, that in these exhibits, which are summarized in this 29, that all the engineers and all the firemen, on all the roads, are shown. I understood you to say the other day that the Yazoo & Mississippi Valley and the New Orleans, Texas & Mexico—I am not sure whether there is any other—had not reported their firemen's payroll.

Mr. Keefe: Well, that is correct. We did not report the firemen on the Yazoo & Mississippi Valley, the New Orleans, Texas & Mexico, and the engineers on the Chicago & Western Indiana. None of those employes were shown. I should have made that reservation. I did not have that in mind at the time Mr. Stone's query was raised.

Mr. Sheean: In order to get the record perfectly straight on that, what are the facts as to just what engineers—are the

engineers on all roads, except the Chicago & Western Indiana, reported, or is that shown by a previous exhibit? I thought we had shown just who was and who was not reported.

Mr. Keefe: All the engineers and firemen that are shown on Exhibit No. 3, are shown in these payroll statements, which includes all the engineers and firemen, excepting the engineers on the Chicago & Western Indiana Railroad, Belt Railway of Chicago. We did not show any data for engineers of that road, nor do we show any data for the firemen of the Yazoo & Mississippi Valley, nor do we show the data for the firemen of the New Orleans, Texas & Mexico; Orange & North Western; Beaumont, Sour Lake & Western; nor does it show either for the engineers and firemen of those roads, which shows no data furnished, indicated on Sheet No. 5 of Exhibit No. 3. There are certain small railroads that we did not obtain any data from, and for those small railroads we did not get the data for the engineers and firemen as well.

Mr. Sheean: Well, on this Sheet No. 5 of Exhibit No. 3, there are specifically set forth the roads in which no data were furnished as to payrolls?

Mr. Keefe: Yes.

Mr. Sheean: And in addition to the showing there, there is also shown firemen only for the Chicago & Western Indiana and the Belt Railway?

Mr. Keefe: Yes.

Mr. Sheean: And the other roads that you enumerate here do not report their firemen. In other words, Mr. Keefe, you answered a general question of Mr. Stone's, which seemed to me somewhat inconsistent with the explanation that you gave the other day.

Mr. Keefe: I had intended—the impression would be that all engineers and firemen for the roads we were reporting for were included in this statement.

Mr. Sheean: In other words, the payroll and the payroll summaries which you show here, are prepared in the same manner and as to the same roads as the summaries which you showed in Exhibit 3?

Mr. Keefe: Yes, sir, excepting that we show in our hostlers on the Frisco Railroad—we show those in our payroll sub-

mitted, but we do not show them on summary No. 3, that is the only difference.

Mr. Sheean: Now, Mr. Keefe, discussion has been raised again about the manner of the preparation of reporting of the average daily wage to the Interstate Commerce Commission. Will you please explain just what reports are made to the Interstate Commerce Commission; what the rules of the Interstate Commerce Commission with reference to the reporting of average daily compensation and total yearly compensation, as set out on page 90 of the instructions issued by the Interstate Commerce Commission?

Mr. Keefe: As set forth on Sheet No. 90 of the annual report of the railway companies to the Interstate Commerce Commission for the year ending June 30, 1911, appears the following instructions, to be used in answering queries on the opposite page, No. 91. "Under 'total yearly compensation,' give the aggregate compensation paid to all employes in each class named during the year covered by these reports. To obtain 'Average daily compensation,' divide the 'Total yearly compensation' in class by the 'Total number of days worked' by that class. It should be especially noted that the number of employes at the end of the year is not to be considered in determining the basis for computing 'Average daily compensation.'"

Mr. Sheean: Preceding that, Mr. Keefe, is there any statement as to the number of employes at the beginning of the instructions?

Mr. Keefe: Yes, sir, at the beginning of the instructions, it reads: "In the column 'Number on June 30,' state the number of employes in each class, as determined from the payrolls at the end of the year for which this report is made. It is not intended, however, that laborers engaged in the construction of new line should be included among railway employes.

"Under 'Total number of days worked' give the aggregate number of days worked by all the employes of each class named during the year covered by this report."

Mr. Sheean: So that, whatever be the average for the average yearly compensation, or the average yearly compensation as reported to the Interstate Commerce Commission, the Commission itself prescribes the form and manner in which that shall be computed?

Mr. Keefe: Yes.

Mr. Sheean: Have you endeavored to make any comparison as to the average earnings per day of the engineers and firemen in the month of October, 1913, with the average daily compensation, arrived at in the manner prescribed by the Interstate Commerce Commission rules?

Mr. Keefe: No, none whatever.

Mr. Sheean: Is there any comparable basis as between the two methods which are used?

Mr. Keefe: I do not so consider that there is.

Mr. Sheean: You were asked as to whether, in the total number of hours here, you had shown the hours they give before or after the trip, on roads that make no provision for preparatory time. Do you, in these hours, as shown in Exhibit No. 29, include all the hours for which they receive pay, even though they were not working?

Mr. Keefe: Yes, sir.

Mr. Sheean: And wherever provisions of schedules require them to be paid on the basis of continuous time, because of tied up between terminals, or for any other reason, the hours as shown in this column are the hours for which they were paid, whether they were or were not working?

Mr. Keefe: Yes, sir.

Mr. Sheean: Attention was called to the fact that, by your Exhibit No. 10 on sheet 2, it was shown that in October, 1913, a distance of 112.6 miles between terminals was made in an average time of 9.31 hours, while the average compensated time of men in through freight service, and for which they re-received pay was 11.2 hours, as shown on Exhibit 29?

Mr. Keefe: Yes.

Mr. Sheean: I will ask you whether or not sheet No. 6 of Exhibit No. 10 must not be considered in connection with sheet No. 2 of Exhibit No. 10, in view of the fact that on sheet No. 6 you have included the turn-arounds and other irregular freight service, which are not included under the headings of Through Freight.

Mr. Keefe: Yes, that is correct, because the wages and time and days shown on Exhibit No. 29, sheet No. 1, include the through or irregular freight service of all descriptions, whether it was turn-around or otherwise.

Mr. Sheean: And in the payroll figures, as shown in Exhibit 29, there is carried out in each instance, and on all the lines, the amounts for which the companies paid money, even though they did not receive the equivalent in miles which the schedule may call for?

Mr. Keefe: Yes.

Mr. Sheean: While Exhibit No. 10, as I understand you, was to show the actual time between the terminals.

Mr. Keefe: Yes.

Mr. Sheean: For compensation purposes, under the schedule, 100 miles is the minimum that must be paid at all times?

Mr. Keefe: That is the general provision.

Mr. Sheean: Well, practically in the greater part of all road service, the minimum payment which is assured is the 100 miles?

Mr. Keefe: Yes.

Mr. Sheean: I think that is all.

RE-CROSS EXAMINATION.

Mr. Stone: Is it not a fact that the bases of all these wage scales in the Western territory are built up and have been made for years on the basis of 100 miles or less, or a certain number of hours, for a day's work?

Mr. Keefe: Yes, that is true, since the first concerted wage movement, as I recall it.

Mr. Stone: Well, long before that, the original schedules were built up in that way, were they not?

Mr. Keefe: A good many of them were.

Mr. Stone: 100 miles or less, or a specified number of hours, was a minimum day's work guaranteed?

Mr. Keefe: Well, not as broad as that, Mr. Stone, because there were a lot of provisions in the schedules—

Mr. Stone: With the exception of certain specified runs, perhaps.

Mr. Keefe: Well, practically all the schedules make provision for short turn-around service, in addition to that. In other words, it does not mean that every time a man starts out of a terminal he would receive—

Mr. Stone: I am not talking about runs at all, but about what is the basis of a day's work in these schedules.

Mr. Keefe: 100 miles or less—

Mr. Stone: Is a day's work, is it not, and is so recognized in all the schedules, or a certain number of hours?

Mr. Keefe: At the present time, yes, that is the understanding.

Mr. Stone: Then why is it not fair to assume that when a man runs 400 miles he has worked four days, in any calculation?

Mr. Keefe: I do not consider that proper.

Mr. Stone: What it that?

Mr. Keefe: I do not consider that is proper.

Mr. Stone: I understand that, from these calculations you have made here. It it not a fact, that if a man runs these 200 miles that Mr. Sheean speaks about, in three or four hours, which will be some speed, of course, that the company gets the revenue for that 200 miles just the same as if he had been eight hours in running it?

Mr. Keefe: It receives whatever revenue is on the train, of course.

Mr. Stone: So any expedited movement of trains, the company receives the benefit, either in freight or passenger traffic, or mail traffic, for the number of miles reeled off, does it not?

Mr. Keefe: It receives whatever revenue is on the train, certainly.

Mr. Stone: I believe you stated that 48.2 per cent of the engineers drew more than the average wage in the month of October; is that correct?

Mr. Keefe: Received wages in excess of the average, yes.

Mr. Stone: Then it is also true that 58.1 per cent of the engineers received wages less than the average for the same month, did they not?

Mr. Keefe: Certainly.

Mr. Stone: You also stated that 46 per cent of the firemen received more than the average wage for the month, did you not?

Mr. Keefe: Yes.

Mr. Stone: Then it must follow, as a self-evident truth, that 54 per cent of them drew less than the average wage for the same month?

Mr. Keefe: Yes.

Mr. Stone: In making up this average daily rate of pay, did you follow the same form in your calculation as the Interstate Commerce Commission prescribes?

Mr. Keefe: The basis at which we arrived at the average daily wage, is shown on the instructions. It shows how the days are to be computed, Mr. Stone, right at the top of Exhibit No. 25.

Mr. Stone: Mr. Chairman, you can readily understand that when, after years of fighting, we have succeeded in having the Interstate Commerce Commission change their form, in order to arrive at a more equitable daily rate, because they realized that the old form made it too high, and all agreed that the figures and results arrived at were incorrect, because they were too high, and they have changed the form, that we cannot let go unchallenged the statement here that even increases the rate shown by the Interstate Commerce Commission 28 per cent; because the Interstate Commerce Commission rate is too high, and it is so acknowledged by all statisticians, and all who are familiar with the way it is arrived at.

Mr. Sheean: Well, Mr. Stone, I would prefer you to make some showing about what statisticians have reached that conclusion and why, and wherefore, and when the Interstate Commerce Commission abandoned it. The last report I saw said, by the statistician, that, when properly understood, and as a basis of comparison, from year to year, they still possessed value.

Mr. Stone: I need only refer you to the report of the Arbitration Committee in the Eastern Territory, that in their award said the figures are incorrect and the results arrived at are incorrect.

Mr. Sheean: I did not want the Board to get an impression that I was going to assent to the statement made, especially in view of the fact that if this be the last report of the Interstate Commerce Commission, I understand that the statistician of that Board still approves of the use of it for comparative purposes.

Mr. Stone: That is the report for 1913?

Mr. Sheean: Yes, and they say, on page 25 of that report—

The Chairman: From what are you reading?

Mr. Sheean: From the text of the 26th Annual Report of

Statistics of Railways in the United States for the Year Ended June 30, 1913, and at page 25 of that report, under statement 21, comparative summary of employes by class and per 100 miles of line operated, on June 30, 1913 to 1903, it is said:

"The statements pertaining to average daily compensation are not altogether satisfactory. The compensation of employees on account of overtime work, for example, is not clearly reflected in these averages. The fact that overtime is sometimes paid for at a higher rate than the hours covered by the ordinary day, does affect the average daily compensation here reported, but the extent to which it affects the averages cannot be determined from the returns received. Is it not possible to change the basis of compiling and reporting compensation for railway employees so as to arrive at the average amount earned each day by the average employee of each class without either changing the rules according to which certain classes of railway employees are paid, or formulating a set of arbitrary rules for converting compensation into terms of a daily wage. Much study has been given to this question, but thus far without arriving at any satisfactory solution. Meanwhile the tables are continued, and, if properly understood, will serve a useful purpose as a basis of comparison from year to year."

Mr. Stone: Mr. Chairman, I simply desire to repeat, if it is the wish of counsel for the railroads, we will be glad to put on an expert who will testify, but I hardly think it is necessary to do that unless he does insist. If you will read the report of the Award of the Eastern Arbitration of the Engineers, that was filed by Mr. Sheean with the Board, you will find that that Board of Arbitration (which was made up of five neutral members) after employing statistical experts, and after careful analysis of the figures, arrived at the conclusion that they were inaccurate and they were too high. And it is also true, and can easily be verified, if there is any question about it, that the form of the Interstate Commerce Commission for information has been changed at the request both of the Bureau of Railway Economics and the statistical experts who have been employed from time to time by this engineering board.

Mr. Sheean: We do not question any of that, Mr. Stone. I thought I could not let go unchallenged your general statement that "everybody knew they were showing the earnings as

too high," whereas, the railway companies believe that as to engineers and firemen the daily average was too low, reduced to a basis of daily wage; that a comparable basis of daily wage under that formula did not fairly reflect the actual earnings of engineers and firemen. But I do agree with the general statement that this general method adopted here does not show exactly, and that they have devised what they believe to be a better system for railway employes.

Mr. Stone: All right. I am glad to know that the counsel and myself are for once agreed. That is all.

Mr. Sheean: Mr. Keefe, Mr. Stone asked you about schedules providing for a minimum day's work being guaranteed. I have seen many schedules which guaranteed a minimum basis of pay, but I would like to see that schedule, if you can give me reference to it, in which the work given by the engineers and firemen is guaranteed to the company.

Mr. Keefe: I understood Mr. Stone's question to be that the schedules provided that 100 miles or a number of hours constitute a minimum day's pay.

Mr. Sheean: Yes, well, that is the way I thought you understood it. The question as I caught it was about a minimum day's work being guaranteed. I have seen a minimum day's pay guaranteed, but I have not as yet seen any guarantee that you can have either the 100 miles or the 10 hours' work, where the men guarantee that.

Mr. Keefe: I don't know of any such schedule that provides for that.

Mr. Stone: It is perhaps unfortunate, Mr. Chairman, that Mr. Sheean came up through the wrong school. If he had come up through the ranks of railroading he would have seen guarantees of many a day's work.

Mr. Sheean: I mean in the schedule. If you can give me reference to what Mr. Keefe says he cannot, whereby you guarantee to give either 100 miles or 10 hours, I will be glad to have that reference.

Mr. Stone: I think Mr. Keefe will admit that you can get the 100 miles or 10 hours out of a man on the Gulf, Colorado & Santa Fe without additional pay, if you have the work for him.

Mr. Keefe: But there is no contract or agreement that provides that the company has a right to expect 100 miles or

10 hours' service for either engineers or firemen when they start a day's work.

Mr. Stone: But the fact remains that you can work them to that extent without additional pay, does it not?

Mr. Keefe: It does provide that where engineers or firemen work 10 hours or more per day, they shall receive hourly compensation, or where they make more than 100 miles, they shall receive additional compensation.

Mr. Stone: But not until that limit has been passed?

Mr. Keefe: Not until that limit has been passed. As Mr. Sheean says, there is no agreement or contract that I know of—I know there is none on the Gulf, Colorado & Santa Fe, which provides that the engineer or fireman agrees to give 100 miles or 10 hours' work for a day's pay.

The Chairman: Does he make any kind of a contract?

Mr. Keefe: The contract provides for the basis of a day's pay, that he shall receive a minimum of 100 miles or 10 hours, for each service performed, but it does not mean that the engineer or fireman has contracted to give that many hours or miles.

The Chairman: Suppose he takes a contract to make a certain run of 100 miles, what is the understanding then? If he runs 100 miles, what is the contract? What has he to do, in other words, in order to comply with the contract?

Mr. Keefe: If he makes only 50 miles, he gets paid 100 miles.

Mr. Stone: What he objects to, Mr. Chairman, is that while it is true the contract calls for 100 miles, if he has not got 100 miles for him, he wants him to do something else.

The Chairman: Suppose he ran 50 miles, could he get off the engine and say, "I do not want to go any further," and receive his pay?

Mr. Keefe: No.

The Chairman: Then he is under contract to run the 100 miles, is he not?

Mr. Keefe: He is under a contract, of course, to perform the service for the company.

The Chairman: I do not get that straight in my mind.

Mr. Keefe: Here is the point of difference. If he makes 90 miles—take an exact illustration: On our road is a 93 mile

district, from Fort Worth to Gainesville. If he makes that 93 miles and reaches his terminal, we have no right to use him beyond that, without having it considered as a new day's pay, regardless of whether he makes it in 10 hours or less—makes it in 5 hours.

The Chairman: But he must run to the end of the line before he is relieved, must he not?

Mr. Keefe: Yes.

The Chairman: To the end of the 90 miles?

Mr. Keefe: Yes.

The Chairman: Then he is, by implication at least, under contract to run the 90 miles?

Mr. Sheean: To run the 90. That is the point I was asking.

The Chairman: I understand he fulfills the contract when he runs the 90 miles.

Mr. Sheean: And is paid 100 for it.

Mr. Keefe: Paid 100 for the 93 miles.

Mr. Sheean: Mr. Keefe, you had an exhibit here the other day as to the possibilities of always getting the 10 hours or 100 miles. What was the number of the exhibit?

Mr. Keefe: Exhibit No. 13.

Mr. Sheean: Now, Mr. Stone just asked you about your ability, where you had the provision in your contract, 100 miles or less, 10 hours or less, to always—practically always—get either the one or the other, in practical operation. On this Exhibit No. 13, if the figures there reported on the Gulf, Colorado & Santa Fe are right, in the single month of October, 1913—

Mr. Keefe: That is for the fiscal year.

Mr. Sheean: For the fiscal year 1913, the Gulf, Colorado & Santa Fe paid for 169,790 miles that were not run nor covered by the hours, which the schedule calls for, as being the basis of a day's work?

Mr. Keefe: That is correct; amounting to $12,970.78.

The Chairman: Now, why was that? Can you explain that so that we can understand it?

Mr. Keefe: Yes. As I endeavored to explain, in the event of a crew leaving a terminal and making a turn-around, we will say of 35 miles out and back, a total of 70 miles in eight hours, he is paid for 100 miles' service; or, in other words, he is paid

for 20 more miles than he has actually given in miles or hours of service. Again, on that very same district I mentioned, between Gainesville and Fort Worth, a district of 93 miles, every train that runs there over the entire district, there is 7 miles paid for, for which no service is rendered, either in miles or hours, and wherever there has been a payment made for which the engineer or fireman did not render service, either in miles or hours, this compilation was made to take care of that, and it shows for all the railroads $1,403,000 for the year.

The Chairman: And you take the 100 miles as the basis constituting the day's work?

Mr. Keefe: Whatever the contract that provides for the basis of a day's pay.

Mr. Byram: Mr. Keefe, in that case of the turn-around, where the crew goes 35 miles and then come back immediately, making a total of 70 miles for which they are paid 100 miles, why does not the railroad company use them for the other 30 miles for which they pay them?

Mr. Keefe: Generally speaking, they are required when they arrive at their terminal to go behind other crews there, and have to wait their turn out, and there is no other service that they can require of them excepting such work as might be done at the terminal.

The Chairman: Suppose they did not have to go behind the other crew, but the way was open for them to return at once?

Mr. Keefe: If they could go back immediately, the agreement would not permit them being paid continuous mileage or time. Have to start a new day's pay.

The Chairman: So the railroad, in that instance, would lose the 30 miles?

Mr. Keefe: Would lose the 30 miles; could not start them out.

Mr. Sheean: Suppose they have two hours of switching there, after they got in after the end of 8 hours and had run 70 miles, and there was two hours switching work to be done in the yards, a layman might be interested in knowing why you do not have them switch for two hours there, to fill out the day of ten hours?

Mr. Keefe: We, under our schedule, are compelled to pay

additional compensation for that switching at the terminal, in addition to the time or miles on the run.

Mr. Byram: Then, in that case, if they ran 70 miles and got back in five hours, and you required that crew to switch two hours, assuming there was no switch engine there, you would have to pay them two hours more? That is, 100 miles and two hours for switching?

Mr. Keefe: Yes, sir.

Mr. Byram: So that altogether, for the 9 hour's service, or the 70 miles run and two hours switching, you would have to pay them 120 miles?

Mr. Keefe: Yes, sir.

Mr. Sheean: That is under the present practice, Mr. Keefe?

Mr. Keefe: Yes.

Mr. Sheean: Under the proposal here, on that 35-mile run, being automatically released, preparatory time, and so on, can you tell us, offhand, what you would have to do? Tell us some of the things under this proposal you would have to do—under this 35-mile run, run as a turn-around?

Mr. Keefe: They would get mileage payment of 200 miles, 100 miles for each turn, plus the preparatory time—arbitrary preparatory time, plus any time elapsing from the time the engine left the roundhouse, until it left the outer switch, plus any final terminal time at the end of the run and preparatory time and initial and final terminal delay on the other run. So he would get 200 miles, at least, plus this additional initial terminal and final terminal delay.

The Chairman: There must have been some reason that actuated the railroads in agreeing to the plan which you say controls. Now, what was the theory upon which the railroads agreed to make these additional payments? Why was it?

Mr. Stone: I think I can explain it, when I get to re-direct examination, after they get through.

Mr. Keefe: Are you speaking to me, Mr. Chairman?

The Chairman: Yes, sir.

Mr. Keefe: Why, it was one of the provisions of the agreements that was entered into, in making schedules, and one of the requirements that was necessary in order to sign up a schedule.

The Chairman: Are we to infer then that the railroads deemed it an unjust agreement?

Mr. Keefe: Why, it is a provision whereby the railroads are required to pay for something that they do not receive, either in miles or hours. It would be more equitable to their interest to pay only for what service or hours they received.

The Chairman: Upon the face of the schedule, of course, we would infer that the agreement was voluntarily made on the part of the railroads, as well as the engineers and firemen.

Mr. Keefe: It was the result of negotiations between the two parties.

The Chairman: But I suppose there must have been some reason why such an agreement was made, and, of course, that would have, in my mind, considerable bearing upon the question we will have to determine ultimately in this controversy.

Mr. Sheean: Your Honor, we propose to introduce—I think it may be helpful to a neutral man—exhibits showing the development of schedule making on several roads, where they started and how they have grown, with possibly some inferences that may be drawn as to why and wherefore certain things went in originally, possibly to remedy conditions or to be remedial in their nature at that time, but how they have gradually, as we view it, worked out to be automatic revenue producers on any kind of operation, although originally remedial in character, and I think possibly that whole subject we thought worthy of a separate treatment by another witness, your Honor.

The Chairman: Well, I will be very glad to hear it.

Mr. Burgess: Will that exhibit include the evolution of compensation for Governor and members of the legal profession as well?

Mr. Sheean: No, I have not undertaken that because they have not gotten up to the point yet where they are worthy of special study. I have only touched the high points in compensatory lines. I think that is all I want to ask Mr. Keefe about this.

Mr. Stone: I would like to ask another question or two of Mr. Keefe.

Mr. Keefe: All right.

The Chairman: I am afraid I carried you far afield.

Mr. Keefe: No, I think not.

Mr. Stone: I want to say, Mr. Chairman, from the discussion that has been taking place the last few minutes, on the side

of the railroads at least, it is very evident that they have not lost sight of their original propositions that were withdrawn before we agreed to arbitrate at all. They are discussing service period pure and simple, nothing else.

Mr. Keefe, in that 93 miles or its equivalent in hours, is it not a fact you can work a man ten hours before any additional compensation begins on that?

Mr. Keefe: Before he begins to compute his compensation in hours he has to be on duty ten hours.

Mr. Stone: Then if he has a drag, and cannot make it in less than ten miles an hour, he does not even begin overtime at the end of nine hours and 18 minutes, he has to work ten full hours before overtime accrues on that short division?

Mr. Keefe: He has to be on the road ten hours before any compensation begins to be computed.

Mr. Stone: So it is a fact that you can take ten hours out of a man, or you can get 100 miles out of a man, when you send him out, before additional compensation begins, if you don't run him back into the terminal and get him behind other crews, is it not?

Mr. Keefe: Yes, that is true, that a man must be on the road more than ten hours before he gets compensated by the hour for his services.

Mr. Stone: Is it not a fact that the switching rule for terminal service was brought out by the fact that the railroads themselves found it cheaper to pay for two hours' additional service after a crew got in than they did to call another crew and pay them a minimum day? Is not that what brought the terminal switching rule?

Mr. Keefe: No, the terminal switching was a rule that was put in to remedy what was the practice, if you please, at that time, of having these crews perform switching service so as to get hours out of the men.

Mr. Stone: Is it not a fact that it would be cheaper to pay a crew two hours' terminal switching than it would be to call out another crew to do it?

Mr. Keefe: Yes, sir.

Mr. Stone: You would have to pay them a minimum day of eight hours if you called them out?

Mr. Keefe: Yes, if they called them out they would be required to pay for that two hours' service, ten hours' pay.

Mr. Stone: I think you already stated the reason you could not get this mileage out of a man was because he got into the terminal and the crews run first in first out, is that correct?

Mr. Keefe: Yes, as a general proposition.

Mr. Stone: Then you do have the automatic release, don't you?

Mr. Keefe: Oh, no. No, we have provisions where we can run men in and out of the terminal without having to pay a day's pay for it, or automatically releasing them.

Mr. Stone: But in chain gang service, except in specified cases, you do have to run them first in first out, or automatically release the man when he arrives at the terminal, unless he happens to be first out?

Mr. Keefe: No, it does not apply to our turn-around service whatever.

Mr. Stone: I am not talking about the regular service on most of these roads.

Mr. Keefe: Well, I am speaking of the rules on our own railroad, Mr. Stone.

Mr. Stone: In your explanation to the chairman, you said it was impossible to get this, because he got around other crews in the terminal.

Mr. Keefe: I was referring to the Gulf, Colorado & Santa Fe, where if a man made 93 miles—

Mr. Stone: And you couldn't get any more out of him unless he got behind the crew at the terminal?

Mr. Keefe: Yes.

Mr. Stone: Then he was automatically released when he arrived at the terminal, wasn't he?

Mr. Keefe: He was released when he got to the terminal.

Mr. Stone: He was automatically released.

Mr. Keefe: He was just released. He was released when he got to the terminal.

Mr. Stone: That is all, Mr. Chairman.

Mr. Sheean: That is by virtue of the fact that you had a first in and first out rule?

Mr. Keefe: Yes.

Mr. Sheean: And you operated in accordance with that rule?

Mr. Keefe: Yes.

Mr. Sheean: You have not had any automatic release rule on any schedule on which you have operated?

Mr. Keefe: No, sir.

Mr. Sheean: Mr. Keefe, have you caused to be printed another exhibit—

Mr. Stone: Just a minute before you go to another exhibit. Mr. Keefe, there are a number of roads in the Western territory that have a first in first out rule, are there not?

Mr. Keefe: I understand so.

Mr. Stone: Is it not the almost universal practice?

Mr. Keefe: I think so.

Mr. Sheean: Do I understand, Mr. Stone, that you are willing then to withdraw the automatic release rule, by having inserted in all schedules, the first in first out rule?

Mr. Stone: You didn't hear me say so.

Mr. Sheean: I thought you were trying to give the impression to the neutral members of the Board, that they were one and the same thing.

Mr. Stone: No. Is it not a fact, Mr. Keefe, that the first in first out rule does release a crew when they arrive at the terminal unless they are the only crew there?

Mr. Keefe: No, not on our railroad. We have a provision where we operate first in first out, but not on turn-around service.

Mr. Stone: Mr. Chairman, I don't want the neutral members of the Board to get the impression that these wage schedules which have been built up through a series of negotiations running back through thirty years, have been got by just walking into the office of our committee, and the general manager granting everything we asked for. They are nice fellows, the best in the world, but I wish you had to do business with them on their native heath, when they are both judge and jury. I think you would find out a difference between trying to get them to agree to something here and trying to get from them something at home, and it is a fact that brought about these concerted wage movements, and these arbitrations, that we ran up against not only the general manager, when we went into the individual road, but against the association of managers, because they had

a standard wage up and down the line, and the manager would tell you, "We will give you just as good as our competitors. If you can get any of our competitors to grant that, we will grant it," and I went from the Gulf to the North Pole, and did not get an increase anywhere, and then we had our first concerted wage movement, in 1906-7.

Mr. Burgess: Mr. Chairman, can I ask Mr. Keefe a question before we adjourn. Mr. Keefe, I again find myself confused trying to relate these exhibits, one with the other. I notice that on Exhibit No. 10, sheet No. 1, you show under a general head there, reading as follows: "Percentages of trains that accomplish their runs at a speed greater than ten miles per hour," and under the column headed "On basis of number of trains operated in 1913," you show 77.09, which indicates to my mind that the compensation was paid on the mileage basis. Am I right on that?

Mr. Keefe: Yes.

Mr. Burgess: Then under the heading, on basis of train mileage, you show 77.76. That, in my opinion, would be a confirmation of the assumption that 77.09 was paid on the mileage basis; is that right?

Mr. Keefe: Well, that indicates it is that percentage of the train miles that accomplished their runs at a greater speed than ten miles an hour.

Mr. Burgess: And, therefore, would necessarily be paid on the mileage basis; is that right?

Mr. Keefe: Yes.

Mr. Burgess: Now then, trying to relate that speed with Exhibit 29, I find there is no mention made of the miles run by the engineers or the firemen; but, on the other hand, in setting forth the amount of wages these two classes of employes received, it exhibits the compensation based on days and hours. Is not that right?

Mr. Keefe: Yes.

Mr. Burgess: Therefore, to that extent, it is misleading inasmuch as the basis for compensation, according to page 10, rested on the number of miles run, while Exhibit 29, is the wages paid on the basis of hours and days?

Mr. Keefe: Yes.

Mr. Burgess: And to that extent it becomes obligatory,

on the part of one arbitrator at least, to perform an extra amount of work to find out how many extra miles the engineer delivered for the amount of money he received.

Mr. Keefe: I have it computed, Mr. Burgess, and I will be glad to tell you that, of the engineers shown on line No. 5, of sheet No. 1, of Exhibit 29, entirely in through or irregular freight service, 3,027 made a total of 7,220,510 miles.

Mr. Sheean: Mr. Keefe, I would suggest in that connection, that you have assembled these figures, all the mileages shown in this big exhibit?

Mr. Keefe: As to the exclusive men, yes.

Mr. Sheean: I was going to suggest that as to each of those, instead of trying to read it into the record, that you furnish the slip and hand it to Mr. Burgess.

Mr. Burgess: No. I do not care to do that, Mr. Sheean. The point is here, that this Exhibit 29 is calculated to draw a true picture before the Board of Arbitrators as to the amount of service rendered to the railroad company; in other words, it was necessary to know the number of miles an engineer ran, to decide whether he was entitled to increased compensation; and that is equally true of the fireman. Now, why was the mileage not inserted in this exhibit, that is calculated, at least, to enable the arbitrators to form a reasonable and a fair conclusion?

Mr. Keefe: For the reason that it could not be possible, in taking an engineer, if you please, that worked both on a mileage basis and on an hourly basis, where there were no miles computed; such as, if you please, referring to Section No. 13 of your Engineers' exhibit, you will find cases there where engineers were engaged in yard service, pusher service, freight service, through freight service, and passenger service, and in the latter three services they made miles, but in the yard service or pusher service, no miles were computed for them, for there is no mileage in yard service. Now, you could not make an exhibit to show, for each one of the classifications there, the number of miles made in their total services. You can do it for the exclusive service, such as engineers in exclusive passenger service, engineers in exclusive suburban passenger service, engineers in exclusive through freight service and in local service, and also the firemen, and if it is considered of information to the Board, I will

be very glad to make an exhibit showing the total number of miles made by the engineers and firemen in that class of service, the average miles made per man, and the average miles made per day, together with the cost per mile for engineers and firemen.

Mr. Burgess: Then you are willing to admit, are you not, as Assistant General Manager, that there are a considerable number of engineers that are exclusively engaged in freight service, and in passenger service, and are paid largely on the mileage basis?

Mr. Keefe: Yes, sir.

Mr. Burgess: And if you were asked a question, to decide whether a rate was fair or not, would you not really have to consider the number of miles the engineer and fireman ran, and the number of hours consumed in making the run?

Mr. Keefe: That is information that possibly an arbitrator might consider of value to him.

Mr. Burgess: Would you not consider it, if you were called upon, as Assistant General Manager, to express an opinion?

Mr. Keefe: Well, I am not in an arbitrator's position, and any information of that character that might be of value to me, I would like to have and would not hesitate to ask for it, if I desired it, as an arbitrator.

Mr. Burgess: Well, to this extent, the exhibit does not exhibit the number of miles he ran.

Mr. Keefe: It does not, but the supporting tables, from which it was compiled, do show the number of miles he ran.

Mr. Sheean: You can show, from the supporting tables, any of this information as to those who were exclusively in any one kind of service at that time.

Mr. Keefe: Yes, and I will be glad to do so if it is of service to the Board.

Mr. Stone: You said 7,220,000 miles—

Mr. Keefe: 7,220,510.

Mr. Stone: For 3,027 engineers?

Mr. Keefe: Yes.

Mr. Stone: That is an average of 2,385 miles, or about that, or 120.73 miles per day, for the entire month of 31 days?

Mr. Keefe: For the number of days they actually worked, yes.

Mr. Stone: What is the number of miles each one made?

Mr. Keefe: The average miles made per man, 2,385.37, for an average of 22.2 days employed, in that month of October.

Mr. Stone: That is all.

The Chairman: We will adjourn at this point until tomorrow morning at 10 o'clock.

(Whereupon, at 5 o'clock p. m., February 1, 1915, an adjournment was taken until February 2, 1915, at 10 o'clock a. m.)

IN THE MATTER OF THE
ARBITRATION
between the
WESTERN RAILWAYS
and
BROTHERHOOD OF LOCOMOTIVE ENGINEERS
and
BROTHERHOOD OF LOCOMOTIVE FIREMEN AND ENGINEMEN
under the Act approved July 15, 1913, *by agreement dated August* 3, 1914.

Chicago, Illinois, February 2, 1915.

Met pursuant to adjournment at 10:10 A. M.
Present: Arbitrators and parties as before.

Mr. Stone: Mr. Chairman, with the permission of counsel I should like to take up and ask Mr. Keefe a few more questions in regard to these exhibits, before he puts on another exhibit, if there is no objection.

Mr. Sheean: No objection.

J. H. KEEFE was recalled for further examination, and having been previously sworn, testified as follows:

RE-CROSS-EXAMINATION.

Mr. Stone: Mr. Keefe, I wish you would turn to Exhibit No. 5, sheet No. 3.

Mr. Burgess: Exhibit 5, is it?

Mr. Stone: Exhibit 5, sheet No. 3. If I understand it correctly, Mr. Keefe, this exhibit which you show here is a summarized income account for the fiscal year 1914, is that correct?

Mr. Keefe: No, sir, sheet No. 1?

Mr. Stone: Sheet No. 3.

Mr. Keefe: Oh, sheet No. 3, yes, sir, for 1914.

Mr. Stone: I believe you stated in answer to a question of mine, during cross-examination on one of these exhibits, that

a large number of roads that showed a deficit in 1913, indicated to your mind that they were financially unable to pay any increases in compensation to locomotive engineers and firemen, did you not?

Mr. Keefe: As I recall it, I stated that the income account statement of the railroads certainly indicated that they were not in as good shape now, in 1914 and 1913, to grant any increases, as they were in 1910, when they granted their last increase. In other words, at the time that they granted their last increase—since the time they granted their last increase in 1910 there has been a large diminution in the returns to the railroads.

Mr. Stone: Then, is it your opinion, or do these figures on this sheet indicate to your mind the financial inability of a large number of railroads, at least, to meet our wage requests?

Mr. Keefe: Such railroads, of course, that have a deficit from operation would, to my mind, indicate that they were not able to pay out any more, not only for increase of wages to engineers and firemen, but for any other increase in their operating expenses, as their expenses already exceed their revenues.

Mr. Stone: I believe when we went over this before, we discussed the corporate relationship, briefly, of these roads, and the fact that the greater number of them that showed deficits were owned by a few prosperous roads. What I am particularly interested in now are columns No. 14, 15 and 16, showing dividends paid out of income. You show a total of $146,155,706?

Mr. Keefe: Yes, sir.

Mr. Stone: Paid from income during the year 1914. That is the total of column 16?

Mr. Keefe: That is the amount paid out of income for all of those roads that are so shown.

Mr. Stone: You also show in your exhibit that the Illinois Central, in column 16, and the St. Paul paid dividends from surplus, do you not?

Mr. Keefe: Yes, there is a footnote at the bottom.

Mr. Stone: Why did you not show the other roads that, in addition to the showing made in your exhibit, also paid dividends from accumulated surplus?

Mr. Keefe: I think I explained that at the time the exhibit was introduced; that for the year 1910 both of those roads declared dividends out of income and are so shown on sheet

No. 1. In order to make any equitable or any proper comparison for the year 1914, the dividends declared on those roads which were taken out of surplus instead of income were shown and attention directed to them so that there could be a proper basis of comparison.

Mr. Stone: Is it not a fact that in the year 1914 the Union Pacific Railway paid from surplus over $74,000,000 in addition to that you show here?

Mr. Keefe: In what year?

Mr. Stone: In the year 1914.

Mr. Keefe: I understand that the Union Pacific did, in 1914, out of its returns from the sale of Baltimore & Ohio stock, declare a dividend of not quite $74,000,000. I think it amounted to $67,000,000 or $68,000,000.

Mr. Stone: $74,020,372.

Mr. Keefe: You probably have the correct figure, Mr. Stone.

Mr. Stone: The Chicago, Rock Island & Pacific paid $1,871,762 from surplus.

Mr. Keefe: Out of their surplus, yes.

Mr. Stone: The M. K. & T. paid $261,429; the Minneapolis, St. Paul & Sault Ste. Marie paid $2,646,714 in addition to what is shown here, and the St. Louis Southwestern paid $3,084,375. There are three or four other small roads which also paid dividends from surplus in addition to those paid from income or a total of all that was paid in that way of $79,835,669—in addition to what was paid from income.

Mr. Keefe: What were those first figures that you gave me, Mr. Stone?

Mr. Stone: For the one road you mean?

Mr. Keefe: No; for the total.

Mr. Stone: $79,835,669.

Mr. Keefe: How much for the Union Pacific, did you say?

Mr. Stone: $74,020,372.

Mr. Keefe: Yes. That is a little over $5,000,000 over and above the Union Pacific—

Mr. Stone: Yes. Then, if the dividends are paid from surplus, Mr. Keefe, as shown by the balance sheet of the railroads for 1914, it is not, then, as a matter of fact, a mere bookkeeping account, as has been intimated here several times?

Mr. Keefe: In connection with that question, Mr. Stone, have you got the dividends that were declared from surplus in the year 1910?

Mr. Stone: I do not know that I have them here. I have them over at the room. I can get them.

Mr. Keefe: Will it not be ascertained that the amount of dividends declared from surplus in 1910 was greater than that amount, if you exclude the Union Pacific, which was in an unusual situation?

Mr. Stone: I do not know, I am sure.

Mr. Keefe: I believe you will find that to be the fact.

The Chairman: What was that, Mr. Keefe? I didn't catch it.

Mr. Keefe: That the dividends declared from surplus in 1910 were as great as if not greater than they were in 1914.

The Chairman: On what road or roads?

Mr. Keefe: Of all the roads, if you exclude from 1914 the seventy-four million odd dollars for the Union Pacific, which was in most unusual circumstances, I would say.

Mr. Stone: The only point I am trying to bring out, Mr. Keefe, is the fact that dividends are paid from surplus in times of depression. If this is true, why should not other items, even if they should arise from the original wage request of the employes, be also paid from surplus in times of depression?

Mr. Keefe: These exhibits, 1 to 3, did not attempt to show what disposition was made of the amounts carried to surplus, whatever. No query was directed at the time of the preparation of exhibits of that character.

Mr. Stone: Do you think that railroads would pay dividends from surplus if they didn't expect more prosperous times in the near future?

Mr. Keefe: I cannot answer that question. It is beyond my experience in railroading.

Mr. Stone: Well, you can at least answer this, whether or not it would be a short-sighted policy to continue paying dividends from surplus if they did not expect a period of prosperous times in the near future? They would soon use up their surplus unless they expected it to be replenished in the near future again?

Mr. Keefe: I think it is a foregone conclusion that if sur-

pluses are not renewed and they are constantly being drawn upon, it would only be a short time until there would be no surplus.

Mr. Stone: I think you stated that you had made no study of the balance sheets of Western railroads, and could not testify as to their large accumulated surplus?

Mr. Keefe: That is correct.

Mr. Stone: Nor could you testify as to their item of available resources in the form of over $200,000,000 in cash?

Mr. Keefe: That is correct.

Mr. Stone: Referring to the summary income account in Exhibit 5, sheet 3, column 1, you show here the mileage operated by the railroads represented in this tabulation on June 30, 1914, amounting to 131,433 miles. Is that correct?

Mr. Keefe: Yes, that shows miles of line operated on June 30, 1914.

Mr. Stone: Can you state what percentage of this mileage is represented by roads reporting a surplus after the payment of interest on funded debt and other fixed charges, and what percentage is represented by roads reporting a deficit after meeting these charges?

Mr. Keefe: No, sir.

Mr. Stone: A careful check of the exhibits shows 41 railroads for which complete data are given had a surplus remaining after the payment of fixed charges, while 44 railroads report a deficit. The roads which showed a surplus include 105,155 miles of the total mileage shown in the table, while the 44 railroads reporting a deficit only comprise 26,247 miles of the total. In other words, 80 per cent of the mileage represented is included in the roads showing a surplus, and only 20 per cent is represented in the roads showing a deficit. Is that correct or is it not?

Mr. Keefe: I have not made any computation of that character. I don't know, Mr. Stone.

Mr. Stone: And you take the roads that show a deficit, the 44 roads that show a deficit.

Mr. Keefe: May I ask what year you are speaking of?

Mr. Stone: I am talking of this sheet right here, 1914, sheet 3. Take such roads as the Pan Handle and the Santa Fe; the Rio Grande & El Paso; the Galveston, Harrisburg & San

Antonio; Texas & New Orleans; they are merely small subsidiaries to larger systems, are they not?

Mr. Keefe: The Galveston, Harrisburg & San Antonio Railroad is a very important railroad in our part of the country. I do not know its intercorporate relationship with any other company.

Mr. Stone: And these 44 roads that show a deficit, also include the St. Louis & San Francisco and the Chicago & Alton, and it is a matter of common knowledge what brought about their present condition. Referring to Exhibit No. 6, have you verified these figures in this exhibit that has been prepared by the Bureau of Railway Economics?

Mr. Keefe: No, I have made no verifications. I simply accepted their statements which they prepared upon the request of our Committee, to obtain the information as shown on this report.

Mr. Stone: Are you certain whether there is any duplication of the property investments in this exhibit or not?

Mr. Keefe: I do not know of any, Mr. Stone.

Mr. Stone: Well, I note, for example, in column No. 4, in the total for the Chicago, Milwaukee & St. Paul, you show $274,935,758.28.

Mr. Keefe: Yes.

Mr. Stone: And reports to the Interstate Commerce Commission show $234,226,643, or about $40,000,000 less than what you show?

Mr. Keefe: Have you made any figures in connection with column No. 5 of that same railroad, as to whether that $154,000,000 which is deducted from the $274,000,000, is right or not?

Mr. Stone: No, but I have found this, in checking over the accounts. Referring to column 4, I find that amount was expended in three years, 1911 to 1913. On checking the St. Paul report to the Interstate Commerce Commission on which the figures are supposed to be based I found the St. Paul expended only $234,226,643 for property and equipment during the period covered by the exhibit, and this leaves a difference of $40,000,000, and the only way I can account for that is that the St. Paul purchased the Puget Sound Lines in 1913 at a price of $179,000,000, in round numbers, and this figure included all

property outlay for the Puget Sound Lines, at the time of its taking over by the St. Paul. I find the Puget Sound Lines, before their acquisition by the St. Paul, July 1st, 1910, expended $40,517,790 for additional property, that was later sold to the St. Paul, and included in the price $179,000,000, and this $40,517,790 is almost, to a cent, the same amount as the discrepancy between your figures in column 4 and the report of the St. Paul to the Interstate Commerce Commission, and it is very evident to me that the Bureau of Railway Economics, in preparing this statement, have evidently made a duplication of this property investment.

Mr. Keefe: I will be very glad to take the matter up with the Bureau, Mr. Stone, and secure either verification of the figures or such explanation as is necessary, in order to explain the figures.

Mr. Stone: You can readily understand that if this table is to be used by you, in an effort to show income has not been available to meet returns, on additional capital invested, that such an increase as this in the case of the St. Paul of over $40,000,000 to your capital investment, would show that $1,600,000 more revenue was needed each year, and would actually be the case if your property investment statement for the St. Paul was correct.

Mr. Keefe: The only purpose for which this sheet was introduced, was to give an idea to the Board of Arbitration of the amount of money that has been expended in the last three years for additions, betterments and improvements to property. We have made no calculations whatever upon the amounts so expended; simply to have them understand that there have been great investments made by these railroads, for the purpose of more economically and efficiently handling their traffic.

Mr. Stone: But it is an evident fact that this summary is introduced to serve some purpose, or it would not be here.

Mr. Keefe: I have explained the purpose for which it is introduced.

Mr. Stone: And it is very important there should not be any discrepancy of that amount?

Mr. Keefe: As I explained, I will be very glad to take up any discrepancies that appear in the record.

Mr. Stone: And again, referring to this, are you certain

that property investments made prior to 1910 have not been included in this statement as made subsequent to 1910?

Mr. Keefe: The data shown is that which is obtained from the annual reports of the respective railroads for the three years ending June 30th.

Mr. Stone: So you do not know whether they included anything before 1910 in their report for 1910, or not?

Mr. Keefe: I have made no examinations of that character.

Mr. Stone: Referring to your Exhibit No. 8, I have been particularly impressed in your application of the alleged political activity of the railway labor organizations, in securing legislation as to train lengths, crews, and so forth, and as to the effect they would have on our claim for productive efficiency. Now, Mr. Keefe, assuming that we should secure the passage of a bill limiting the length of a train below what it should be for the most economical operation, this would cause an increase in operating cost per train mile, would it not?

Mr. Keefe: Anything that reduces the efficient and economical handling of a train certainly increases the expense per train mile.

Mr. Stone: And by consequent net decrease in revenue per train mile also, would it not?

Mr. Keefe: Read that question again, please?

(Question read as above recorded.)

Mr. Stone: Then I asked the question if it did cause an increase in the operating cost per train mile, it would also cause a decrease in the net revenue per train mile, would it not?

Mr. Keefe: That is a very hard hypothetical question you are asking me, Mr. Stone. Any increase, of course, in that cost per train mile, without any increase in the revenues per train mile, necessarily means a less net revenue per train mile; but it is conceivable that, by any change in rates or a change in the revenue-producing ability of the railroad, there might be a decrease in the cost per train mile, with an increase in the revenue per train mile, and there would, therefore, be no decrease in the net. Inversely, the opposite is also true, that without any increase in revenue per train mile, any increase in the expenses per train mile would mean a less net revenue per train mile.

Mr. Stone: That is a long answer, Mr. Keefe.

Mr. Keefe: Well, your question necessitated a long answer, Mr. Stone.

Mr. Stone: I am inclined to believe you have come over to our side and believe in productive efficiency.

Mr. Keefe: I believe in anything that tends to a more economical operation of the properties and that brings about a return to the railroad company, if that is what you may term an efficient operation.

Mr. Park: What has been the object of the managers on reducing grades, eliminating curvature, building second and third tracks; has it not been to increase the efficiency of the railroads?

Mr. Keefe: To make them more economical and to bring about better and more efficient operation.

Mr. Park: So that they could haul larger train. The enactment of legislation requiring only half a train to be handled would nullify all that expenditure, would it not?

Mr. Keefe: It would have, of course, the effect of making a more expensive operation than it could or should be.

Mr. Park: While the cost of operating one individual train might be decreased, the cost of operating all the trains would be vastly increased, would it not?

Mr. Keefe: It would be a very much more expensive operation, Mr. Park.

Mr. Stone: Mr. Keefe, if a foreman had a number of laborers digging a ditch, and by providing them with bigger shovels made it possible for them to dig more dirt, would it be the productive efficiency of the men or the foreman that was increased?

Mr. Keefe: It would be the productive efficiency of both labor and capital. It would take the combination of both to produce the result.

Mr. Stone: Because capital bought the shovel?

Mr. Keefe: I should say it was the result of a combination of both the labor and the capital.

Mr. Park: Can a fireman produce the greatest efficiency with a large shovel or a small shovel, Mr. Keefe?

Mr. Keefe: I do not know that I can answer that, Mr. Park.

Mr. Stone: It depends on how much draft you have on the machine at the time, does it not?

Mr. Byram: Would limiting the size of the train, reducing it one-half, increase the cost per train mile necessarily in your train operations—per train mile?

Mr. Keefe: Per train mile, the cost might not be any more, if you consider train mile only as the unit or as the base.

Mr. Byram: I understood that was what you were talking about.

Mr. Keefe: If you consider the train mile itself as the only factor, without regard to all the cost, that is, and the ultimate cost of operating the property, it is possible and probable that the cost per train mile only may not be greater with a train half the size that was formerly run.

The Chairman: Then, wherein would the increase be?

Mr. Keefe: It would be increase in the total cost of operating the property for a greater number of trains.

The Chairman: Now, as an experienced railroad man, what proportion would the increase be, in your judgment? We are seeking light as to this point. Some of us do not know so much about railroading.

Mr. Keefe: Well, that is a hard proposition to answer abstractly, Mr. Chairman.

The Chairman: It is going to be a hard problem for us to deal with, and we would like to have some basis.

Mr. Park: Does this contemplated legislation compel reducing the trains 50 per cent?

Mr. Keefe: I have made no estimates. It is placing a limit on the trains, and it depends on previous practice in that territory what the reduction would be, whether it would be 25 per cent or 50 per cent.

Mr. Park: And that would a factor in determining how much greater the expense would be after the enactment of such a law.

Mr. Keefe: The total expense, yes. It is conceivable, Mr. Chairman, that the cost of operating per train mile—take a train of 100 cars, and if it would cost a certain sum of money, and you would have to run that in two trains, your cost is going to be much more than it would be for a single train.

The Chairman: Well, now, in what way? That is what I

would like to know. In what particular? What are the factors that enter into it?

Mr. Keefe: The direct wages of the additional crews that are necessary; the amount of fuel consumed by two locomotives handling the same amount of traffic as one; the consequent use of the property by two trains rather than one; and all of the factors that go into the operation of property are affected to some extent by the greater number of trains that are run.

The Chairman: In operating a long train, loaded to its full capacity, is it usual or unusual to have overtime?

Mr. Keefe: I would say it would be unusual to have overtime. The preponderance of the trains do not have overtime.

The Chairman: But if there should be overtime, would the increased cost of operating two trains be equivalent to the amount that you have to pay out on account of overtime?

Mr. Keefe: Generally speaking, no, of course. It would be considerable where a train was kept out on the road an extremely long time, and it is possible that you may pay two days' compensation for that train.

The Chairman: So then, according to your view, in any event there would be an increase in operating cost?

Mr. Keefe: Wherever it entered into compensation as being paid by the hour, yes.

The Chairman: Paid by the hour?

Mr. Keefe: Probably I did not quite get your question, Mr. Chairman.

The Chairman: As I say, if I understand you, in any event, the shortening of the length of the train would result in an increase of operating expense to the railway?

Mr. Keefe: Yes, sir, as a general proposition, that is my view.

Mr. Stone: Also a reduction in overtime, wouldn't it, Mr. Keefe?

Mr. Keefe: Wherever there was any overtime brought about by the greater length of the train.

Mr. Stone: If I understand your answer to the Chairman's question, you would take the position, then, that a certain amount of overtime was a good investment, rather than to run two trains—it would be cheaper. Is that correct?

Mr. Keefe: A more economical operation would be not to

have any overtime. There may be occasions where some overtime would be more economical.

Mr. Park: Mr. Keefe, is it not a fact that by creating a greater density of traffic, and congestion, by increasing the number of trains that would tend to increase the amount of overtime more than any one thing?

Mr. Keefe: Any congestion of traffic would increase the operating expenses of a railroad.

Mr. Park: If you were operating a single track road up to its capacity, or nearly so, and you should cut the trains in two—be required to cut them in two, having on the road twice as many trains, the difficulties of the despatcher and the operating forces in getting those trains over the road, would be vastly increased, and that would tend to create overtime abnormally, wouldn't it?

Mr. Keefe: That would be a much more expensive operation and less economical operation, by the operating of an additional number of trains on a congested piece of track.

Mr. Park: That is the reason money is expended in reducing grades, and building second and third tracks, to prevent these conditions, and prevent abnormal overtime caused by having too many trains on the road in any particular district?

Mr. Keefe: Those are some of the prime reasons in making expenditures for the improvement of property.

Mr. Stone: Then it does come right back, Mr. Keefe, to the fundamental claim of ours, that by the use of heavy power, you do reduce your number of trains, and reduce your congestion of traffic and are able to move more tonnage than before with a less number of trains, doesn't it?

Mr. Keefe: Please read that.

(Question read by reporter.)

Mr. Sheean: I would like to have your answer read.

The Chairman: What is that question? I didn't get it.

(Question again read by reporter.)

Mr. Park: I understand Mr. Carter can answer that yes or no, and then make any explanation he desires?

Mr. Stone: Surely.

Mr. Keefe: Yes, as a general proposition, anything that reduces the number of trains to a certain point makes for more economical and efficient operation.

Mr. Byram: Then, Mr. Keefe, conversely, anything which tends to increase the number of trains, has an opposite effect?

Mr. Keefe: As a general proposition.

Mr. Byram: Now, do you remember your first answer to Mr. Stone's first question on this subject?

Mr. Keefe: That would depend on what his first question was.

Mr. Byram: I mean on this exhibit. As I remember, he asked you if limiting the length of trains by legal enactment would thereby increase the cost per train mile. Is that correct, Mr. Stone?

Mr. Stone: I wasn't paying attention. Will you read that, please?

(Statement of Mr. Byram was read by reporter.)

Mr. Stone: That is correct, yes, sir.

Mr. Byram: Now, I believe you answer yes to that. Did you or did you not?

Mr. Keefe: If I answered yes, I should have made a qualification that the cost per train mile considered by itself may or may not be increased when you consider the train mile only as a unit, but the cost of operating the property, there is no question in my mind, has increased more with the additional number of trains than it would have if they had a less number of trains.

Mr. Byram: Then if I understand your answer, you mean that as to the total cost of operating all trains, which has increased 50 per cent, say, by increasing the length of trains 50 per cent, the cost would be greater, but the cost per individual train mile might be less. Is that right?

Mr. Keefe: Not only operating all trains, but the cost of operating the property would be increased.

Mr. Byram: It might be increased, and at the same time the train mile cost would be decreased. Is that the answer?

Mr. Keefe: Yes.

Mr. Park: That is, there are certain other expenses that are increased by the increased number of trains, such as track expenses, agencies, etc.?

Mr. Keefe: Yes, a number of the operating accounts are increased other than the actual train expense by the additional number of trains.

Mr. Park: It would take more men at the roundhouse to take care of the engine, and it would require more engines?

Mr. Keefe: More maintenance.

Mr. Park: Maybe, perhaps all those things.

Mr. Stone: I am still thinking about that ditch digger, Mr. Keefe. I believe you said that the productive efficiency was brought about by a combination of capital and labor. Capital bought the shovel which was twice as large, and labor handled the shovel. Suppose those workmen who were doing twice the amount of work that they did before asked for an increase in wages; do you suppose the foreman would say, "No, all the profit of this thing goes to capital because they furnished the shovel."

Mr. Keefe: That is a most unusual case, Mr. Stone.

Mr. Stone: So you do not care to answer it?

Mr. Keefe: I think its answer is patent on its face, is it not?

Mr. Stone: Then, if your answer is correct, that anything that limits the length of a train below the economical point of operation increases the cost per train mile and decreases the net revenue per train mile, suppose we should seek a wage increase on the principle of the increased productive efficiency. Such a claim would be, as it has been here, would it not, based on the net revenue available after all operating costs had been paid?

Mr. Keefe: I have not given assent to the manner in which you have put your question.

Mr. Stone: Well, with a few exceptions or a few life lines which you have thrown out to windward—with the few exceptions which you made—in a general way you assent to it, do you not?

Mr. Keefe: No.

Mr. Stone: But if we were to attempt legislation which we consider safer, or for the abolition of the working conditions that we thought had reached the point of being almost intolerable, would we not then be proceeding on the ground that we would rather have better and safer working conditions than a participation in revenue gains which would arise from working conditions which we might deem unsafe or unsatisfactory. Would not that be the result of it?

Mr. Keefe: Please repeat that?

(Question read as above recorded.)

Mr. Keefe: To my mind you have asked for increased compensation because of the maximum efficiency of the locomotives, and at the same time, your organization, through another source is seeking legislation that will prevent the railroad companies from receiving the maximum efficiency or the maximum output, or the efficiency of the locomotives or of the plant, which, to my mind, is inconsistent.

Mr. Stone: You are talking about the locomotives now, or the plant and not the men? You are leaving out the human factor?

Mr. Keefe: I am referring to the proposition—the proposals of your organizations, asking for increased compensation, based upon the 100 per cent efficiency or capacity of the locomotives and at the same time, practically, you are, through another branch of your organization, seeking legislation that will prevent the railroads obtaining that capacity of their locomotives which, in my opinion, is not consistent at all.

Mr. Stone: And yet you are not prepared to say that anything that limits the economical operation of the road or the 100 per cent efficiency of the locomotive, will increase the cost per train mile?

Mr. Keefe: I say it will increase the total operating cost of the property. It will increase the expense of the railroads.

Mr. Stone: It will also increase the cost per ton mile—the cost per train mile and per ton mile, will it not?

Mr. Keefe: It will increase the total operating expenses of the property, Mr. Stone.

Mr. Stone: Is not that reflected, in the final analysis, in the ton mile and the train mile?

Mr. Keefe: Not in the ton mile, absolutely, because there is certain passenger traffic that the ton miles are not computed or have no bearing upon.

Mr. Stone: This traffic miles, then, will, with our legislative activity, be reflected in decreased net revenues, as you claim it will, because we are going to limit the productive efficiency of the plant? It would be also shown in the final net revenues, before we could claim an advance on the ground of increased productive efficiency, would it not?

Mr. Keefe: Any increase in operating expense, of course, would be reflected before the net amount available is shown on the books of the company.

Mr. Stone: I think you will agree with me that there is a human limit to productive efficiency, is there not? There is a limit to the human machine. You finally get to the limit somewhere, do you not?

Mr. Keefe: Unquestionably, there is a limit somewhere.

Mr. Stone: It is a fact that machines in our mills and factories could be operated at a much greater speed than they are, if the men, women and children who attend them, could keep pace with them, could they not?

Mr. Keefe: There is a limit of endurance, yes, sir.

Mr. Stone: And men do have to lay off sometimes, because they are simply human and not a machine; they reach the limit?

Mr. Keefe: They lay off for a great many reasons, Mr. Stone.

Mr. Stone: You would not agree that they sometimes lay off, because they are worn out and get beyond the limit of human endurance?

Mr. Keefe: I would not deny that at all.

Mr. Stone: But you would not agree to it?

Mr. Keefe: I do not deny that they do lay off, because they feel that they need rest. I will assent to that, if you wish me to, yes.

Mr. Stone: That is all, Mr. Chairman.

Mr. Park: Your exhibit shows that a great many men lay off in light passenger service?

Mr. Keefe: The exhibit shows, yes, that men in passenger services do lay off. Whether it is light or not, I have not made any analysis of it. The men assigned to exclusive passenger service do lay off.

RE-DIRECT EXAMINATION.

Mr. Sheean: Mr. Keefe, you have not, on any of your exhibits here, gone into the question or the theory of productive efficiency, but in the matter of legislation it is perfectly manifest that if a railroad company which has been hauling 2,000 tons, in 50 cars, spends several million dollars to cut down grades, and with the grades thus cut down they could haul 75 cars and 3,000 tons, and if the legislature then provides that they shall not haul

more than the 50 cars which were being hauled before this expenditure, that they are not realizing upon that additional investment; is that not true?

Mr. Keefe: That is not economic or efficient operation.

Mr. Sheean: And without any effort to ascertain percentages, or what the effect of it is, it is manifest that such sums of mnoey as have been expended in eliminating grades, buying larger engines and other investments, will be rendered unproductive if legislation says that you shall not utilize this increased efficiency?

Mr. Keefe: Yes. Anything that tends to prevent the economical and efficient operation of the property, and obtaining the proper operation of the property.

Mr. Sheean: And, so, on the question as to whether or not it increases or decreases, or affects the cost per train mile, if legislation says that you shall make twice as many train miles, by running twice as many trains as you are running, that they are going to increase your expense, considering your plant as a whole?

Mr. Keefe: I have no doubt of it at all, in my mind, that it would increase the expense to the railroads.

Mr. Sheean: So that whether it is effected per ton mile or per train mile, if you are required to operate twice as many trains and thereby might make twice as many train miles, the expenditures of the company are bound to be increased?

Mr. Keefe: I think that is self-evident on its face, Mr. Sheean.

Mr. Sheean: And, so, on this question of productive efficiency, as alleged by Mr. Lauck, it is the position of the railroad companies that in the case that this young man from the Western Indiana told us about, where he was operating a gravel spreader, by means of a locomotive and the appliances for spreading gravel on the right of way, that the company does not recognize, or that no theory of economics recognizes that the fireman and engineer with that locomotive and that gravel spreader is entitled to credit for being as productively efficient, as the 30 or 40 laborers who were supplanted by this device. Do you recall the young man from the Western Indiana, who told us about operating a gravel spreader in their construction work here?

Mr. Keefe: I have rather a hazy recollection of it, yes. It does not look to me as a reasonable proposition that any claim as to the so-called productive efficiency of the members of that crew, would be entitled to additional compensation, on that ground alone.

Mr. Sheean: Now, your Exhibit 6, about which you have been questioned this morning—

Mr. Nagel: One moment, please. Mr. Keefe, as I understand it, the demand for the increased wages is based upon the power of the engine, is it not?

Mr. Keefe: That is my understanding. Their proposals are based upon the weight on drivers, which, as explained, was to take the place of the tractive effort, which is the ability of the engine to pull tonnage.

Mr. Nagel: And we have been given to understand here that these engines are employed to the utmost capacity, handling as large tonnage as they can possibly carry, and the theory has been that the result so accomplished, demonstrates in part the productive efficiency of the men on the engine. Is not that so?

Mr. Keefe: That is my understanding of the claim that has been set up by the men, yes.

Mr. Nagel: You say that if the laws of the states reduce the train length or the tonnage, which any particular engine may carry, that then the productive efficiency or the economic result will be reduced in some measure?

Mr. Keefe: Yes, there is, to my mind, an inconsistency there.

Mr. Nagel: We are asked to fix compensation for a period of time, and to standardize it for a whole territory, regardless of what action may be taken by particular states in that territory?

Mr. Keefe: Yes.

Mr. Nagel: And, is it not true that we must bear in mind that one of the factors upon which we are now asked to rely is flexible and may at any time be modified during the period for which we act, by a state which is not a party to this proceeding?

Mr. Keefe: That is true.

Mr. Nagel: I would be glad to know just how we are to deal with that undetermined factor.

Mr. Stone: Are you through, Mr. Sheean?

Mr. Sheean: Not quite.

Exhibit No. 5, about which you were interrogated this morning, Mr. Keefe, deals only with the income accounts of the railways for the periods shown on the separate sheets, and the disposition of the income during these years?

Mr. Keefe: Yes, sir.

Mr. Sheean: As to whether, in 1910, the expenditures were made from other sources than income, the exhibit did not attempt to show?

Mr. Keefe: No.

Mr. Sheean: And the purpose and object of Exhibit 5 was to show the income received by the railroads during the periods compared, and what disposition was made of that income?

Mr. Keefe: Yes.

Mr. Sheean: I think that is all about this, Mr. Stone.

RE-CROSS EXAMINATION.

Mr. Stone: Then, on that same subject, what does your footnote "B" mean?

Mr. Keefe: As I explained before, to make comparable the statement for the year 1914 with 1910. It would, to my mind, have been unfair on our part to have shown that there was eighteen million dollars less dividends declared in 1914, compared with 1910, when such dividends were taken out of the income account in 1910, and out of the surplus in 1914. It is for the purpose of making a more comparable exhibit.

Mr. Stone: But the fact remains, does it not, that it was $18,000,000 taken out of some other source than income; it was surplus, was it not?

Mr. Keefe: Yes, there is no denying that at all. It is plain, on its face, as to the source from which that $18,000,000 was declared.

Mr. Stone: Mr. Keefe, when railroads reduce grades, put down heavier rails, double-track, put in steel bridges, build viaducts, and all that, they have increased the value of their property, have they not, to that extent?

Mr. Keefe: There has been an increase in the value of the property, yes.

Mr. Stone: And you are also permitted to reimburse the

owners of the property by issuing bonds to that effect, are you not, to offset that?

Mr. Keefe: As a general proposition, any improvements of the properties, as I understand it, are subject to bond issue. That is, answering in a general way. There might be some exceptions as to certain classes of improvements.

Mr. Stone: So that the owners of the property really get additional bonds for the actual money expended, or perhaps more, do they not?

Mr. Keefe: Wherever they issue bonds, yes.

Mr. Stone: And that being true, the engineers and firemen will continue to draw these heavy trains, made possible by these improvements, and pay interest on the stock, but the owner gets the money, does he not?

Mr. Keefe: The improvements to the property are not reflected in increased bond issues at all, Mr. Stone.

Mr. Stone: Most of them are nowadays, are they not?

Mr. Keefe: Whatever improvements are bonded, a rate of interest has to be paid upon such bonded indebtedness, the same as any other form of bonded indebtedness.

Mr. Stone: Mr. Chairman, Mr. Carter wants to ask a few questions before we leave these exhibits.

Mr. Carter: Will you turn to sheet 1, Exhibit 29? Mr. Keefe, please refer to line 51, the fourth column from the right. I understand that your computations from reports from the railroads indicate that the average wages paid to hostlers are 24 cents an hour; is that correct?

Mr. Keefe: To hostlers engaged exclusively as hostlers.

Mr. Carter: Exclusively as hostlers, yes.

Does that include hostlers who, having the time to do so, are required by the railroads to assist in other work around the roundhouse?

Mr. Keefe: That includes the compensation paid to all the men who are designated as hostlers upon the return of the payroll to the company.

Mr. Carter: But supposing a case where they can do it and do do it, and they refuse to call a hostler a hostler, and after he hostles engines, we will say, for eight hours, they require him to pack trucks for the remaining three or four hours; would his wages be included in here?

Mr. Keefe: If he was not carried upon the payrolls as a hostler, his wages would not be included in here.

Mr. Carter: Then those railroads that contend that they do not have hostlers, have not reported?

Mr. Keefe: The returns are from those railroads who report the employment of hostlers on their payroll, and so designate them. The details for each individual railroad are shown in Exhibit No. 28, section Nos. 37 and 38.

Mr. Carter: Then, if, as appears to be the practice on some roads, a man is required to hostle engines an average of eight hours a day, assuming the responsibility that other hostlers assume, and performing all the duties that other hostlers perform, and is required to pack engine trucks the remaining portion of the twelve hours, and is called by that railroad a "handy man," he would not be reported by the railroads to the Managers' Committee for the computation of these exhibits?

Mr. Keefe: If there was any such case as that, that is correct.

Mr. Carter: I am going to ask you, Mr. Keefe, as the second chief operating officer of the Gulf, Colorado & Santa Fe Railroad, if you had two men employed at different points on your road, both doing identically the same work that I have described, one of whom you called a hostler and carried him on the hostlers' payroll, and the other whom you called a handy man, then I understand, from the instructions that you sent out, your road would only report the man who was called a hostler.

Mr. Keefe: The instructions that are shown on the back of our form No. 30, on which we compile the data on this Exhibit No. 25, in this case, contains the instructions as to that point.

Mr. Carter: Will you read those instructions, please?

Mr. Keefe: Yes. (Reading): "Section X should include the names of all men working exclusively as hostlers. This should not include roundhouse men, whose duties do not require them to move locomotives, or men who are not permitted to move locomotives.

"Section Y should include the names of all men who work part of the month as hostlers and part of the month as engineer or fireman, and the greater portion of his wages earned as hostler."

Mr. Carter: Read the note.

Mr. Keefe: I am going to read it.

"Note: If a man was employed as hostler and also as a shop man, his wages should be omitted."

Mr. Carter: According to that, if a railroad that required a hostler not only to do the hostling but, because he had a few minutes of his time, required him to do something else, he would not be included in this compilation?

Mr. Keefe: If he was employed as a shop man he would not be shown in the compilation.

Mr. Carter: Then it might be and probably is that the man who was required to do additional work other than hostling, might be doing a great deal more work than the man who hostled only. Is that not true? I mean he might have hostled the same number of engines as a man at another point, and yet one road requires him to do additional work and the other road does not; therefore, there was that difference in the furnishing of information upon which these compilations are based?

Mr. Keefe: The instructions as to how the information was to be compiled, are very plain, I think.

Mr. Carter: If a man who already is working as a hostler and then carrying out what I understand is a railroad service period, after having performed all of his work as a hostler, they get him to do something else before the expiration of his twelve hours, you would not include him in this compilation?

Mr. Park: To refresh my mind, Mr. Keefe, I wish you would read the instructions to the railroads.

Mr. Carter: Just read the note. The note is the particular thing I am trying to bring out.

Mr. Keefe: The instructions in connection with the hostlers are as follows:

"Section (X) should include the names of all men working exclusively as hostlers. This should not include roundhouse men, whose duties do not require them to move locomotives, or men who are not permitted to move locomotives."

"Section (Y) should include the names of all men who work part of the month as hostlers and part of the month as engineer or fireman, and the greater portion of his wages earned as hostler.

"Note: If a man was employed as hostler and also as a shop man, his wages should be omitted."

Mr. Carter: I understand there is an earnest effort on the part of the railroad to take up all of a man's time under what they call the service period. I understand with the railroads that have adopted the service period, if a hostler has any time to do anything else, they make him do it, and that they would not be included in this compilation under those circumstances.

Mr. Keefe: Wherever a hostler was employed as a shop man in addition to his duties as hostler, and was carried on the shop roll, he was not included in this computation as a hostler. The amount of that, as I recall it, is about $10,000 for the entire movement.

Mr. Carter: We will exclude those poor fellows, and take the men who are not required to do additional work to fill out their twelve hours; have you ascertained that the average wage per hour for all those hostlers who do nothing else, is 24 cents, on line 51?

Mr. Keefe: Yes; that is the average earnings per hour of all of the 2,247 hostlers that earned the $165,780.52.

Mr. Carter: If a hostler laid off for any cause would you include him, if he earned less than $65 a month?

Mr. Keefe: On this sheet, all hostlers, regardless of the length of time which they were employed, are shown.

Mr. Carter: But if he earned over $65 a month you would not pay any attention to it?

Mr. Keefe: Yes; if he earned more than $65 a month, or less than $65 a month, he would be shown on this tabulation.

Mr. Carter: Let us get back to the original question that I was trying to ask. I understand you have ascertained, by including only hostlers that performed hostling work, that the average rate of wages was 24 cents?

Mr. Keefe: Yes; that is on Exhibit 28, Section No. 37.

Mr. Carter: I am looking at the bottom of column No. 4, Exhibit 29.

Mr. Keefe: Yes; that is the summary of the details.

Mr. Carter: Will you answer yes or no. That is all I want to know.

Mr. Keefe: Yes.

Mr. Carter: If you have ascertained that the average wages of all hostlers who were not required to do other work, is 24 cents an hour, how much would they receive a day if they were permitted to work eight hours a day, as employes in other industries are permitted to work?

Mr. Keefe: I have not made any computation of that character.

Mr. Carter: I have. It would be $1.92 a day. Don't you think this showing, on this exhibit, indicates that the wages of hostlers are abnormally low, compared with the wages of employes in other services where responsibilities are not so great?

Mr. Keefe: I do not know what you are referring to by that comparison,—

Mr. Carter: Well, take—

Mr. Keefe: May I be permitted to answer my question?

Mr. Carter: Yes.

Mr. Keefe: It shows what the hostlers actually received in the month of October, as reflected by our exhibit.

Mr. Carter: You would not care to answer yes or not to any question of that kind, would you?

Mr. Keefe: Compared with the wages received by firemen and engineers the wages of hostlers appear low.

Mr. Carter: Let me ask you: Let us compare those wages with the wages of employes in the building trades. Let us take the building laborers, for example, the hod carriers. Suppose I tell you that the wages earned by hostlers are not much more than 40 or 50 per cent of the wages of hod carriers for twelve hours' work—for a guess. Would you think, then, that the railroads paid abnormally low wages to hostlers? If you do not care to answer it, we will pass on.

Mr. Park: Would it not be necessary to take into consideration the yearly wage earned by the hod carrier? If the hod carrier was only able to make four or five hundred dollars a year, and the hostler was able to make six hundred or seven hundred dollars a year, it would be necessary to know the yearly wage as a basis of comparison, would it not?

Mr. Keefe: All the factors in determining the reasonableness of a wage ought to be considered in determining what is a proper wage.

Mr. Park: Steady employment is a factor?

Mr. Keefe: There should be a comparison of any factor that is necessary to give all the facts, and not merely one or two. In connection with that query, Mr. Carter's question referred to outside crafts. We have an exhibit indicating what compensation is received by similar tradesmen in the railroad employ, Exhibit No. 23. Comparing with that exhibit, I would not say that the hostlers' wages were abnormally low.

Mr. Carter: Then I understand from that reply that while employers in the building industry recompense their employes at a high rate per hour, the railroads recompense their hostlers by giving them an opportunity to work many hours. Is that true?

Mr. Keefe: I have not made any such statement as that.

Mr. Carter: Well, you are comparing the wages of hostlers per week with the wages of hod carriers. In one case the hod carriers are perhaps high because they get a high rate; in the other instance, you might show the hostler's rate was high because he works many hours. That would be the reason their wages would be about the same. Is that true?

Mr. Keefe? In order to make any comparison of the amount received by hostlers, hod carriers, or any other branch of service, you have got to take into consideration all of the facts.

Mr. Carter: Then I am going to ask you, if the facts were this, that a hostler worked eight hours every day, that a hod carrier worked eight hours every day, and it was shown that the wages of a hod carrier far exceeded the wages of a hostler, would it indicate that the wages of the hostler are abnormally low? If you do not want to answer, will pass to the next.

Now, we will pass on up to line 36. Line 36, firemen entirely in yard or switching service. I note there that you have discovered, or have found in this compilation, that the average wages per hour of a fireman in switching service is 25 cents per hour, is that correct?

Mr. Keefe: That is the average earnings per hour for all of the 5,170 men who were engaged as firemen in yard service exclusively, in the month of October.

Mr. Carter: And if a fireman in yard service was per-

mitted to work eight hours a day, as employes in many other trades are, his wages then would be $2 per day, would it?

Mr. Keefe: If he only worked eight hours a day it would be $2 a day, eight hours a day; his earnings would be eight times the 25-cent rate.

Mr. Carter: But I understand that this comparison shows he is actually earning $2.89 a day on the average, is that true?

Mr. Keefe: Yes.

Mr. Carter: And to earn that average he is working an average of 11.4 hours, is that true?

Mr. Keefe: That 11.4 is the number of hours which he was compensated for, yes.

Mr. Carter: And if the fireman was required to report for duty say on a day engine which was not double crewed in advance of starting to work, and was not compensated for that service, it might be much more than the average of 11.4 hours. Is not that true?

Mr. Keefe: There would not be included in the hours any time for which he was not compensated.

Mr. Carter: And if it was shown that firemen are required to put in time for which they receive no compensation, it would tend to increase the average hours that they were on duty above that shown here?

Mr. Keefe: Yes.

Mr. Carter: Now, if it requires a switch engine fireman to actually work an average of 11.4 hours a day in order to earn an average of $2.89 a day, or an average of $58.86 per month, if he were granted time and a half for overtime after eight hours, as is the practice in other industries, would his earnings not be very much more than shown here for 11.4 hours' work?

Mr. Keefe: Any change in the basis of the compensation, whereby he gets additional wages, will, of course, increase his earnings per day and per man; but permit me to call attention to the fact that the reason that average earnings, per man, of $58.86, is brought about by a number of firemen who worked temporarily in the switching service—only temporarily in the switching service, in October, 1913, and they are counted the same as if a man had worked the entire 31 days in switching service. They are on a parity with a man working 31 days, and therefore, in order to obtain a proper idea as to what firemen in

switching service received per man, Exhibit No. 3 is a better sheet—Sheet No. 3 is a better and more proper exhibit to look at.

Mr. Carter: And what does that show?

Mr. Keefe: It shows an average earning per man of $80.47.

Mr. Carter: And in order to bring that average up to that, you have included every man who laid off, for any cause whatever?

Mr. Keefe: No, sir.

Mr. Carter: Well, what men have you excluded, laid off not available for duty? The wording I want to call attention to says: "Excluding men who were not available for duty." I understood you to say, when a man laid off, he was not available for duty?

Mr. Keefe: If you will read the footnote that follows the heading, there is a star which calls attention to the basis of ascertaining when men were or were not available for duty, and it plainly states that only inquiry was made of such men, where their earnings in yard service was less than $65.

Mr. Carter: Then, men who earned less than $65, who were either extra men or who laid off for any cause whatever, were excluded from this average of $80.47 per month.

Mr. Keefe: Yes.

Mr. Carter: If they were included, it would make a much lower average, would it not?

Mr. Keefe: If every man was included, it would be the average as shown on Sheet No. 1, but the details of the men that were excluded is shown in Sections Nos. 39, 40 and 41.

Mr. Carter: In any event, then, Mr. Keefe, does this compilation not indicate that the wages of switch engineers and firemen are abnormally low?

Mr. Keefe: Not to my mind, it does not so indicate.

Mr. Carter: You think when a switch engine fireman gets 25 cents an hour and is privileged to work 11.4 hours per day, he does not need any assistance on that wage question?

Mr. Keefe: When it must be considered that he is simply entering the railroad service. That is the lowest round of the ladder, if you please, in engine service. That is where, generally speaking, the men in engine service start from.

Mr. Carter: Then in a yard where that is not the practice,

you think perhaps he should receive more money than in a yard where it is the practice?

Mr. Keefe: Well, the general practice, as I stated—the general practice, and I think that prevails mostly, where the switch firemen come up as road men, as yard engineers, and then road firemen and road engineers.

Mr. Carter: And you think then that this is abnormally low for men working on railroads where the yard seniority and road seniority is separate?

Mr. Keefe: No, I did not say so.

Mr. Carter: Then I misunderstood the theory advanced. Now, we will pass on up to line in through or irregular freight service—line 28. I understand that you have ascertained that all the firemen working entirely in through and irregular freight service are earning an average of 44 cents an hour?

Mr. Keefe: For the hours for which they are compensated, yes.

Mr. Carter: Well, down here I find that you have discovered, by the same process, that firemen who were working entirely in local or way freight service, are earning 39 cents an hour; is that right?

Mr. Keefe: Yes, for the hours for which they are compensated.

Mr. Carter: What does that indicate, Mr. Keefe? Does that indicate that even at the present differential, firemen in local and way freight service cannot make as much per hour as men in through freight?

Mr. Keefe: To my mind, it indicates the fact that the men in through freight service are more generally compensated by miles rather than by hours, and bears out the previous exhibit filed, which shows that a larger percent of the men in local or way freight service, receive their compensation in hours rather than in miles.

Mr. Carter: But I understand that in Exhibit 29, you have purposely omitted any reference to miles or days, on a mileage basis. Is that not true? A man might make 200 miles in a day, in theory, but here you show him making it—

Mr. Keefe: We have an exhibit which is to be the first one introduced this morning, showing the mileage made by men in exclusive service, Mr. Carter.

Mr. Carter: Yes, but I am trying to gather the intent which sheet 1 of Exhibit 29 means.

Mr. Keefe: To show the actual situation, as reflected by the payrolls.

Mr. Carter: It is shown that firemen engaged in through and irregular freight service, are able to earn more per hour than in local or way freight service, even with the present differentials. Is that not true?

Mr. Keefe: Their earnings for the hours they are compensated, shows a higher rate per hour for the firemen in through or irregular freight service, than in the local service.

Mr. Carter: Now, one is 39 cents and the other is 44 cents; is that not right?

Mr. Keefe: Yes, sir.

Mr. Carter: Well, what percentage is 44 cents over 39 cents? For a guess, is it about 10 per cent, or a little over?

Mr. Keefe: Approximately that.

Mr. Carter: Well, in this proposition does it not include a request for a 10 per cent differential in through and way freight service? I mean to say in local and way freight service, over through or irregular freight service.

Mr. Keefe: The proposition of the engineers and firemen does contain it.

Mr. Carter: Would this not indicate that someone connected with compiling that proposition, by inspiration, perhaps, knew just about what differential there should be, in order to bring the local man up to the freight man?

Mr. Keefe: No, I do not understand that at all.

Mr. Carter: Is it not phenomenal that they should have estimated that that was the difference that should exist in the wages, and here, by your Exhibit 29, you show that that is exactly the difference that does exist?

Mr. Keefe: No, sir.

Mr. Carter: Then this does not mean that. It was not intended for that purpose, was it? Well, we will pass on up to line 14.

Mr. Nagel: Mr. Carter, do you want your questions answered, or are you simply making declarations?

Mr. Carter: He did not want to answer it.

Mr. Keefe: I did not give any inference that I did not care to answer it; didn't have the opportunity to answer it.

Mr. Carter: Well, then, you can read the question again. Mr. Chairman, I am trying, as I have been all through these proceedings, to facilitate matters. I think I have gained the reputation of touching the high spots.

Mr. Nagel: Yes; we will give you the credit for having been successful, but the record must show whether the witness has declined to answer.

Mr. Carter: I felt that my questions were embarrassing to the witness and I did not want to embarrass him.

Mr. Keefe: I will not hesitate to let you know when any questions embarrass me, Mr. Carter.

Mr. Carter: Read the last question.

Mr. Sheean: Better read two or three questions.

(Record read as above recorded.)

Mr. Keefe: The intention of this exhibit was to show the facts as they actually existed, Mr. Carter, without any desire to show anything different than what the records show.

Mr. Carter: Thank you. Now, will you pass to line 14, engineers entirely in yard and switching service. I understand that the average rate per hour, ascertained by this compilation, was 43 cents for engineers.

Mr. Keefe: That was the average of the compensation they received, per hour, for the hours for which they received compensation.

Mr. Carter: 43 cents an hour?

Mr. Keefe: Yes.

Mr. Carter: For running an engine, I understand, however, that under the practice, these engineers average 11.4 hours per day. Is that true?

Mr. Keefe: Yes, sir, that was the number of hours that they were compensated for per day, on an average.

Mr. Carter: And then by working 11.4 hours per day, they were privileged to earn, or did earn, an average of $119.73?

Mr. Keefe: That is on the basis of counting every man who worked one day, two days or more, on the same basis as a man who worked thirty-one days. The average in that event of placing all of the men on a plane each received $119.73.

Mr. Carter: And it also counts the man, or includes the man who worked much over ten hours, does it not?

Mr. Keefe: It includes all of their compensated hours.

Mr. Carter: Then, if we were to have excluded all the hours worked over a full day, as we have excluded those who failed to work a full month, the actual rate would have been $4.30 a day, is that right? No, it would have been about the actual rate in the schedule, wouldn't it? If it was $4.25, it would have been $4.25 a day?

Mr. Keefe: And if it was $4.50, it would have been $4.50 a day.

Mr. Carter: Now, please pass on up to line 10. I note here that engineers entirely in local or way freight service have earned, according to this compilation, an average of 59 cents an hour. Is that true?

Mr. Keefe: That is their compensation per hour for all of the hours they were compensated for.

Mr. Carter: And, passing up to line 6, I find that engineers entirely in through or irregular freight service, have earned an average of 67 cents an hour, is that true?

Mr. Keefe: For the hours for which they were compensated, yes.

Mr. Carter: Will you tell me what percentage of increase 67 cents is over 59 cents?

Mr. Keefe: Approximately the same as your figures.

Mr. Carter: More than 11 per cent, is it not?

Mr. Keefe: About 11 per cent.

Mr. Carter: How much?

Mr. Keefe: Wait a moment, I will give it to you in a minute. Over 13 per cent.

Mr. Carter: Then it would appear that the committee, in asking for the differentials, did not ascertain the facts before they prepared their proposition. Is that not true?

Mr. Keefe: No, I would not so consider it.

Mr. Carter: Well, suppose we say that we would throw in the additional 3 per cent, it would indicate that the 10 per cent indicated in this proposition is not excessive on account of the differential earnings per hour?

Mr. Keefe: I would not subscribe to that, Mr. Carter.

Mr. Carter: You would not subscribe to that?

Mr. Keefe: No, sir.

Mr. Carter: All right. Now, we will pass up to line 1. I

understand that you have ascertained, through this compilation, that the average pay of engineers entirely in passenger service is $1.11 an hour, and that includes everybody who worked in passenger service?

Mr. Keefe: Entirely in passenger service. The average earnings per hour for the hours for which they were compensated, was $1.11.

Mr. Carter: And if you called a man and he did not do anything else but work one day in passenger service, the average rate per hour is $1.11?

Mr. Keefe: Well, that is the average for all of the 5,128 men, regardless of the number of hours that they may have worked per day.

Mr. Carter: Now, presuming that there was a request made by the representatives of the employes that the proposition now submitted for arbitration be withdawn, and that the present rate per hour as shown here, be adopted in lieu thereof, on a basis of a five-hour day, you, as general manager or assistant general manager of one of the roads, would you be willing to accept that proposition, pay $1.11 per hour?

Mr. Sheean: And no compensation except on an hourly basis?

Mr. Carter: That is all, on a five-hour day.

Mr. Sheean: On any number of hours a day?

Mr. Carter: Five hours.

Mr. Sheean: If it is all to be by the hour—is it to be by the hour? Go strictly on an hourly basis of compensation?

Mr. Carter: Yes, we would say strictly hourly compensation basis.

Mr. Sheean: No days in it, merely hours?

Mr. Carter: Yes, there will be a day in it. We want to break away from railroad practice, but we say eight hours a day, and time and a half for overtime. Are you willing for all the propositions to be withdrawn—I want to explain, Mr. Chairman, that when I ask the witness a question and counsel for the railroads interjects something, I think it is in order for me to explain. I was trying to bring from the witness the fact that the wages he says are now being paid are far preferable to our requests, with all this added enormous estimates of increased compensation. If you will pay the engineers and firemen—

engineers in passenger service, $1.11 an hour, and the firemen in passenger service 70 cents an hour, it is so much better than we are asking for here, I am almost convinced that if they thought about it before there had been arbitration, we would have accepted it, and there would have been no arbitration.

Mr. Nagel: It is not too late, yet.

Mr. Sheean: No, it is not too late.

Mr. Park: Are you willing we should go to an hourly basis?

Mr. Carter: Eight hours a day, and time and a half for overtime?

Mr. Park: No, on an hourly basis.

Mr. Carter: I see what they want to do. They want railroad men not to have the privileges that other men have who do work on an hourly basis. They are willing that we should take the bitter, but not the sweet. I say this, if they propose to give us an eight-hour day in freight service, with time and a half for overtime, as in any other service, and pay engineers in through and irregular freight service 67 cents an hour, it will make about $10 a day for that lot, working ten hours, and a fireman in through and irregular freight service 44 cents an hour, time and a half overtime after eight hours, it is so far better than we are asking for, I am sure that the next movement will be for that purpose. I am trying to get them to say that that is what they will do, and then, when we come up again, we won't ask for anything but what they say we have.

Mr. Byram: Do you question the accuracy of the computation?

Mr. Carter: I don't want to question anything, because that would be impolite.

Mr. Byram: I thought that was what you meant by saying that if you were really getting that you would be satisfied.

Mr. Carter: I am saying that this is so much better than the men are getting, that if it were submitted to them for referendum vote, they would forget all their mining system, because the firemen— Now, let us see, take a fireman in through or irregular freight service, now, Mr. Keefe, I am going to ask you to help me—

Mr. Byram: I hadn't quite finished with you, Mr. Carter.

Mr. Carter: Oh, I beg your pardon.

Mr. Byram: I asked you if you questioned the fact that these rates of pay, average rates of pay here per hour, were correct.

Mr. Carter: I think they are entirely exaggerated, because they have ignored the enormous amount of time, taking it in the aggregate, that the engineers and firemen contribute to the company for which they receive no compensation.

Mr. Byram: Well, I presume you refer to the question of preparatory time.

Mr. Carter: I refer to the statement as testified to by these witnesses, witness after witness, "How long are you required to report for duty before your train leaves," some say thirty minutes, some say an hour. That is why I say these figures are grossly exaggerated.

Mr. Byram: Then, do you admit that the figures are correct, as showing what the men receive from the time they are ordered to leave until they leave at the end of their trip?

Mr. Carter: I prefer not to answer either way.

Mr. Byram: All right, sir.

Mr. Carter: I am not making any accusations.

Mr. Byram: I understood you were. I understood you were questioning the accuracy of this statement of ours, and payments, and I wanted to find out what grounds you had for questioning it.

Mr. Carter: I don't want to accuse anyone of deliberate wrongdoing. If there is anything wrong here, so far as Mr. Keefe is concerned, I want to say to you that it is an accident and not intentional.

Mr. Byram: That is not the question, of whether the accuracy was deliberate or unintentional. I want to know what reason you had for questioning the accuracy at all.

Mr. Carter: My opinion is that firemen do not earn that much.

Mr. Byram: They don't earn it in what way? As represented by this exhibit, do you mean? That they don't get that much per hour from the time they go on duty until they are relieved?

Mr. Carter: If they do, it is a surprise to me and practically every fireman in the country.

Mr. Byram: That might be so, and it still be a fact, might it not?

Mr. Carter: Well, if it is a fact, and that is what I am basing these questions on, then, if we ever undertake a new movement, instead of complicating the situation by 18 or 20 articles, if we ask in through freight service for an eight hour day, time and a half for overtime, and 44 cents an hour for firemen in through freight service, the only change we will make will be the eight hour day and overtime. The rate is not increased.

Mr. Byram: Then you do not question the fact that at the present time you are getting what this exhibit shows, because you would not need to ask for any more if you are satisfied with it.

Mr. Carter: I am quite sure that they are not getting it. Now, will you please make some figures for me. Take 44 cents an hour multiplied by eight.

Mr. Park: Mr. Keefe, you have the pay check receipts for these amounts? They are available.

Mr. Keefe: They are in the records of the company, no doubt.

Mr. Carter: According to this statement, every fireman is earning an average of $4.84 cents a day, for ten hours. I beg your pardon, I don't mean that. According to this statement, he is earning 44 cents an hour here which, on eight hours basis, time and a half for overtime, would amount to $4.84 a day. I have not authority to speak for them, but I am sure that if by referendum vote it is now referred to the men that they accept an eight hour day with time and a half for overtime at 44 cents an hour, they will accept it even more readily than our proposition with all these estimates of increase. That is all.

Mr. Stone: Just one more question, Mr. Keefe. Is it not a fact that in this compilation of Exhibit 29, that according to your other exhibits that seventy-eight and a decimal percentage of the men are paid on mileage and not by the hour at all, in freight service, in through freight service?

Mr. Keefe: That is, through freights that operate over the entire district?

Mr. Stone: Is it not a fact that, with but few exceptions,

your passenger men are paid on a mileage basis instead of on a daily basis? A large percentage of them at least?

Mr. Keefe: Yes, a large percentage of them.

Mr. Stone: The percentage that is paid on the monthly wage is very small?

Mr. Keefe: I would say so, yes.

Mr. Stone: So, in compiling this sheet you leave out the most important factor of the whole wage compilation, the mileage of the men run, do you not?

Mr. Keefe: I endeavored to explain yesterday afternoon the reasons why it was impossible to show for all of the classes of service, the miles made, because of the fact that, in some of these segregations, it was impossible to compute miles, because there is no mileage computation, such as yard service, certain work train service, and certain helper service. We have an exhibit that will show the mileage.

Mr. Stone: But in this computation here, which has taken up so much time, and on which we have cross-examined at length, you place your own interpretation on what constitutes a day, you give a hundred miles or less, 10 hours or less, or 8 hours or less, or 5 hours or less, in passenger, you give it no consideration at all in showing this exhibit.

Mr. Keefe: In ascertaining the number of days, it very plainly sets forth the basis on which that was computed, in Exhibit No. 25. There was no intent or desire to conceal anything, simply to show what was the actual basis used in compiling this data, and it is very clearly and plainly set forth, the basis on which a day is computed.

Mr. Stone: And a day may mean anything.

Mr. Keefe: No, sir.

Mr. Stone: From 100 miles to 500 miles?

Mr. Keefe: No, sir; no, sir.

Mr. Stone: If a man ran 400 miles today, would it show one day or four?

Mr. Keefe: If he made it in one calendar day, it would be shown as one day.

Mr. Stone: Then it may mean anything for a day?

Mr. Keefe: No, it means what it actually is, a day of time.

Mr. Stone: And the mileage basis is left out entirely? That is all.

Mr. Sheean: Mr. Keefe, the instructions here were that the computations per day should be a calendar day?

Mr. Keefe: Yes.

Mr. Sheean: There was no effort to find out whether a so-called railroad day was running out four miles to bring in a disabled engine and treating it as a day, or whether it was making a 200 mile run, or a 50 mile run, or a 10 mile run, which, for purposes of pay, were equivalent to a day.

Mr. Keefe: No, it was on the basis of a number of calendar days.

Mr. Sheean: This is an effort to reduce to a comparable basis the people who work by the day, of treating a day what it really is, to wit: a calendar day?

Mr. Keefe: Yes.

Mr. Sheean: And, throughout the whole compilation, the day here used is the real calendar day?

Mr. Keefe: Yes.

Mr. Sheean: Now, you were requested last evening, or you stated that you could very easily obtain from the Exhibit here, 29, the showing of the mileage in all of the exclusive service, but where it was intermingled, that it would be impossible to show that milage, where a person in passenger service might have been in switching service or helper service during a part of the month.

Mr. Keefe: Not from Exhibit 29, but from Exhibits 26, 27 and 28.

Mr. Sheean: Yes. From which this summary on 29 is made?

Mr. Keefe: Yes.

Mr. Sheean: Now, in compliance with that request, have you summarized, as sheet No. 5 of Exhibit 29, the showing as to the mileage on each of those sheets, 1, 2 and 3?

Mr. Keefe: Yes. Where it applies to men engaged entirely or exclusively in either of the branches of service.

Mr. Sheean: And that showing of the mileage made in each of these exclusive classes of service, is obtained from the data or details shown in Exhibits 26, 27 and 28?

Mr. Keefe: Yes.

Mr. Sheean: We offer sheet No. 5 of this Exhibit 29—

Mr. Stone: Before you take that up I should like to ask

one more question on the rest of the exhibits, after you get through with your cross-examination.

Mr. Sheean: I think we had better distribute these. It may be in connection with that, Mr. Stone. The suggestion was made by Mr. Burgess last evening, of this being omitted, and we would be glad to print this in convenient form, but it was only compiled after the adjournment last night, and it is now mimeographed, but we would be very glad to print it as sheet No. 5, and then give you any number of copies that you may desire, Mr. Stone. We will have it printed during the day.

(The document so offered and identified was received in evidence and thereupon marked "Sheet No. 5 of Railroad's Exhibit No. 29, February 2, 1915.")

Mr. Sheean: Will you explain briefly, Mr. Keefe, just what this sheet No. 5 shows, how it was brought together?

Mr. Keefe: Sheet No. 5 is a summary of the data relating to engineers, firemen, motormen, helpers and hostlers engaged exclusively in certain classes of service in the month of October, 1913.

Mr. Sheean: Now, the first one of these tables at the top of sheet No. 5 is a summary of the same matters that are shown on sheet No. 1, as to the men involved and wages paid, limiting it to those in exclusive service on sheet 1 of this exhibit?

Mr. Keefe: Yes.

Mr. Sheean: And giving the additional information of the number of miles made by those in exclusive service?

Mr. Keefe: Yes.

Mr. Sheean: The second one of these tables on sheet No. 2 summarizes the miles of the men who are covered by the summary on sheet No. 2?

Mr. Keefe: Yes.

Mr. Sheean: And the third one of these tables shows the summary of the miles made in exclusive service by the men shown on sheet No. 3, or covered by sheet No. 3?

Mr. Keefe: Yes.

Mr. Sheean: Now, Mr. Keefe, in connection with the omission of the mileage on pusher and helper service, there was asked the other day that some inquiry be made as to the $329.65 paid engineer Pauline. That is the Great Northern Railway.

Have you received the information as to how that payment was made?

Mr. Keefe: Yes. Page 653 of Exhibit No. 26 showed Alex D. Pauline, an engineer in helper service, as having worked thirty days, 304 hours, and earned $329.65.

Mr. Sheean: You showed no mileage, because he was in helper service?

Mr. Keefe: Yes.

Mr. Sheean: And just explain why it was thought that mileage should be shown in helper service.

Mr. Keefe: As indicated by this particular circumstance, this man was engaged in helping trains up Essex Hill, that is from Essex to Summit, and return. They returned light from Essex to Summit, that is, light with simply the engine. The round trip mileage of that is 36.6 miles, and he is paid for each trip 100 miles plus terminal overtime. This gentleman made forty-two such trips in the month of October, and his allowed mileage, based upon 100 miles for each trip, was 5,090 miles. His rate was $6.49 per 100 miles.

Mr. Sheean: Now, forty-two trips there at 36.6 miles per round trip, would only have shown, had you carried out mileage in helper service, something like 1,500 miles.

Mr. Keefe: 1,537.2 were the miles actually made. That is what would have been shown.

Mr. Stone: What was his rate, did you say?

Mr. Keefe: $6.49. That is 10 per cent added to $5.90.

Mr. Park: On each of these trips then, when he started out, he did not deliver 100 miles?

Mr. Keefe: No, he only made actually 36.6.

Mr. Park: But was paid 100 miles for each one?

Mr. Keefe: Yes. His average time was about 5 hours in making that trip?

Mr. Park: Under the rules of that company, there was no way in which he could have been required to deliver 100 miles each time he was called.

Mr. Sheean: The Great Northern schedule is ten hours or less, 100 miles or less, and a provision in their automatic release that, on a trip of that sort, if they started out with less than a ten hours' spread, it would count as continuous time, but if, after ten hours, he started on a second trip, a new day would

begin. The provision of the Great Northern schedule itself makes perfectly clear the operation of that. That is shown in Exhibit 1.

Mr. Park: So if he was over 10 hours and 5 minutes—

Mr. Sheean: They have an automatic release here. Automatic release, 272 and 277.

Mr. Stone: While he is looking that up, might I ask you a question, Mr. Keefe?

Do you understand that they are still paying those helpers in that same way at the present time?

Mr. Keefe: I don't know what they are doing at the present time.

Mr. Stone: I understood you to say the book was compiled from present schedules.

Mr. Keefe: That is what the men actually received in the month of October, 1913, upon the schedule that was in effect at the time that was paid.

Mr. Stone: Well, that schedule has been modified by an agreement with this Conference Committee of Managers, hasn't it?

Mr. Keefe: Yes, sir.

Mr. Stone: Then it should be paid the same way now, should it not?

Mr. Keefe: Yes, sir.

Mr. Stone: Just for your information, I want to tell you that it is not.

Mr. Keefe: In what way?

Mr. Stone: The automatic release rule is not in effect at the present time.

Mr. Keefe: I do not know anything about the details.

Mr. Sheean: Mr. Park, on page 273 of Exhibit No. 1, the rule of the Great Northern schedule, Rule 33, reads:

"Engineers arriving at terminals or end of run are automatically released. Under this rule it is agreed that the Company will be allowed to run Engineers to first siding out of regular terminal to pick up train set out account of blocked yard, and run through terminal with same.

"Assigned to Turn-around Trips. This will not prevent the assignment of engineers to a succession of short trips out of a terminal, provided that second or any succeeding trip shall leave

the terminal within ten hours from the time called to leave designated track on first trip, or provided the actual miles run are less than one hundred, otherwise the additional run will be considered as commencing new day. Engineers so assigned not to be run around by each other at their terminals. The term assignment, as used in the foregoing, applies where there are 15 or more days continuous service."

Mr. Park: The actual miles of this man?

Mr. Sheean: 36.6 miles per round trip and 42 round trips in the month.

Mr. Stone: Can I ask a question there, Mr. Sheean?

Mr. Sheean: Yes.

Mr. Stone: Would you understand by the reading of that rule that they could get a man out of the terminal again, unless he was first out?

Mr. Sheean: No, but I understand this to be a man assigned on this particular helper run. As I understood it, he was an assigned helper.

Mr. Stone: There is a group of them there—three groups.

Mr. Sheean: No, that specifically says, as I read it, "They shall not be run around."

Mr. Stone: That is the very point I wanted to bring out, and for your information I will say they are running around them at the present time, in order to get the service period out of them.

Mr. Byram: Mr. Keefe, I would like to know just what did happen to this man we are speaking about. I am not exactly clear. I want to know how many hours he worked in that month, how many miles he actually run, how many miles he was paid for, and how much money he received.

Mr. Keefe: Most of that information I asked the superintendent direct, Saturday afternoon, for it, and I got a reply Sunday morning that all the time sheets, time slips and time books had been sent that night to the General Manager's office at St. Paul, and are coming here, as this is one of the roads that the men asked for the details on.

Mr. Sheean: You can give the total—

Mr. Keefe: 304 hours his actual hours worked.

Mr. Byram: Now, how many miles did he run?

Mr. Keefe: He actually ran in miles 1,537.2.

Mr. Byram: 1,537.2 miles he actually ran?

Mr. Keefe: Yes, sir.

Mr. Byram: Now, he was paid for how many miles?

Mr. Keefe: His mileage allowance was 5,090 miles.

Mr. Byram: Then he ran 1,500 miles and was paid for over 5,000 miles?

Mr. Keefe: Yes.

Mr. Byram: And that money amounted to how much in the month?

Mr. Keefe: $329.65.

Mr. Stone: How many hours did you hold him for service during that period? Is there anything to show there, between trips?

Mr. Keefe: No, in addition to the mileage made, he is paid terminal time; he is paid in addition to his mileage some terminal time.

Mr. Stone: How much terminal time was he paid? Does it show?

Mr. Keefe: No, it does not show. That is one of the questions I asked and they said the time slips had been sent in. He was paid, each trip, 100 miles plus terminal overtime, making 42 trips; total mileage allowed, 5,090 miles.

Mr. Sheean: Now, as to mileage here, Mr. Keefe, or carrying out the mileage column, a situation of that sort, it was the thought of the Committee that the hours on duty, for which paid, and special situations of that sort would be a fairer showing than to attempt to carry helper mileage, actual and allowed and the complications that would ensue from that; and, therefore, in that part of the exhibit, we show simply hours as to pusher, helper, and unclassified service.

Mr. Byram: On that basis, as I understand, he was paid for over 500 miles, at ten miles per hour—is that right?

Mr. Keefe: Well, his time was reduced to a mileage allowance of 5,090 miles.

Mr. Byram: But, measured at the rate of ten miles per hour, he was paid for 509 hours—is that right?

Mr. Stone: This is one of the few men that you have on sheet 29, in helper service, and working on an hourly basis?

Mr. Keefe: No, they are all shown on an hourly basis, all on that sheet, every one of them. In fact, all of section No. 14

are on an hourly basis. Answering your query, Mr. Byram, yes.

Mr. Byram: So that he worked 304 hours and was paid on the basis of ten miles per hour, for 509 hours?

Mr. Keefe: The equivalent.

Mr. Byram: The equivalent of 509 hours' pay?

Mr. Keefe: Yes.

Mr. Byram: Does that have any effect on the colloquy between Mr. Carter and yourself, as to the difference between the rate per hour of the men who were paid on a mileage basis and those who were paid on the hourly basis?

Mr. Keefe. Yes, sir.

Mr. Byram: Is that a pretty good illustration of the difference?

Mr. Keefe: That clearly illustrates the reason for the difference in the rate per hour; the fact that the mileage men are paid on the mile, rather than by the hour.

Mr. Sheean: Now, the other day, Mr. Keefe, while we were on that same general subject—

Mr. Keefe: Just before you leave it, Mr. Sheean, I want to call attention that the number of miles shown on this sheet No. 5, Exhibit 29, and the average miles per man and the average miles per day, are the actual miles made and not the computed miles. By that, I mean it is the actual miles that he made, and if we had shown mileage for helper, it would have been the 153 miles and not the 5,000 miles that we would show.

Mr. Sheean: And, so, in your exclusively passenger service, for any one upon a run being paid 100 miles, who was actually running 70, the miles shown here are the actual miles of 70?

Mr. Keefe: Yes.

Mr. Sheean: Before coming back to that sheet 5, Mr. Keefe, you were also asked, the other day, to get some information about some of these Canadian Pacific men, who were shown as working 22 hours a day, for a long period. What information have you on that?

Mr. Park: That is, in work train service?

Mr. Sheean: Work train service, yes?

Mr. Keefe: The case that I referred to is on the work train service, on the Canadian Pacific, Saskatchewan Division

Sheet No. 643 of Exhibit No. 26, Mr. Stone directed attention to the number of hours worked by Engineer J. W. Rodgers, in work service, at Balgoni. For 19 days, he had 452.5 hours, or an average of 23.8 hours per day, for which he drew $211.11. He also directed attention to a Mr. Prestidge, who worked 24 days, a total of 516 hours, or 21.5 hours per day, for which he received $239.94. Do you want me to read the telegram?

Mr. Sheean: Yes.

Mr. Keefe: This telegram was sent to the superintendent for the Saskatchewan Division:

"Your payroll statement, form thirty-two, shows J. W. Rodgers as having been employed in October, nineteen thirteen, nineteen days, four hundred fifty-two and five-tenths hours in work train service at Balgoni, for which he received two hundred eleven dollars eleven cents compensation. His average hours per day is twenty-three and eight-tenths. Please wire detailed explanation quick as to this man's service in that month, particularly if during any part of the hours shown, he was not working. Impression has been created that this man, also Engineer W. J. Grabot, in work train service between Friars Pit and Morse, and J. Prestidge, in work train service between Regina and Belgoni, have been required to work an excessive or unreasonable number of hours. Want to present detailed facts to Arbitration Board Monday morning. Will appreciate quick reply giving same."

Savage replies:

"Your wire date. Rodgers was employed on spotting engine at Balgonie and was actually engaged in work train service on an average of about 15 hrs per day. Balance of time the engine was being coaled and watered, during which time the engineer was allowed pay. The crew was allowed reasonable time for rest each 24 hours; same applies to engineer Prestidge, who worked on unloading engine."

Mr. Sheean: That is, on the exhibit as introduced here, the time that he was compensated for is 23.8 hours, that he drew pay for each day?

Mr. Keefe: Yes.

Mr. Sheean: In the same way, or, rather, the other one

was mileage, where, on a run of 1,500 miles, they were allowed 5,000 miles, and working 15 hours, they were allowed 23.8 hours under pay?

Mr. Keefe: Yes, they were compensated for that number of hours.

Mr. Sheean: And, therefore, the hours for which they were compensated are shown in that case in that way?

Mr. Keefe: Yes.

Mr. Stone: In that Canadian Pacific case, do you understand from that that it took nine hours each day to coal and water that engine?

Mr. Keefe: And a rest for the engineer.

Mr. Stone: It says that their time was used in getting coal and water for the engine.

Mr. Park: I understand that was the difference between the time they were actually spotting the cars, and after that was done the engine had to be given coal and water; and whatever difference that was the engineer was paid for.

Mr. Burgess: What was the exact number of hours there?

Mr. Keefe: 15 hours. The telegram says: "Actually engaged in work train service on an average of about 15 hrs per day."

Mr. Burgess: About?

Mr. Keefe: About 15 hours per day.

Mr. Park: And paid for what?

Mr. Keefe: 23.8 hours. (Reading) "Balance of time the engine was being coaled and watered, during which time the engineer was allowed pay. The crew was allowed reasonable time for rest each 24 hours."

Mr. Park: So that they were practically given continuous time—23.8 hours?

Mr. Stone: Do you understand that they ran to some terminal for coal and water, or that they put it on there?

Mr. Keefe: This shows that he worked at Balgonie. He was on a spotting engine. He said he was on a spotting engine, which means he was in a pit there and worked in some sort of a gravel or sand pit.

The Chairman: What was the engineer doing while they were coaling and watering?

Mr. Keefe: They said he was taking a rest.

Mr. Park: One man might be employed to shovel on coal, and it would take him several hours. I do not understand that it means that all the time was employed in taking care of the engine, two or three hours one day and two the next, and so on.

The Chairman: Was that time divided up; that is, did they run the engine until it needed coal and water, and then lose say thirty minutes for that purpose, or an hour? Is that the way it is done?

Mr. Keefe: The statement is that the engineers were allowed reasonable time for rest each 24 hours, and from that I take it that it was a fact that the coal and water had to be taken intermittently during the period.

The Chairman: He was actually on duty that length of time, but a portion of the time he was not actually engaged in running the engine, as I understand it?

Mr. Keefe: A spotting engine, Mr. Chairman, is an engine that was in the pit. It does not do any road work at all.

The Chairman: I understand.

Mr. Keefe: It simply—

Mr. Park: It pushes cars under the steam shovel.

Mr. Keefe: It pushes cars under the steam shovel or loading track, or whatever there is there.

Mr. Park: And whenever the steam shovel stops, the engine that is spotting the cars is not used again until it commences?

Mr. Keefe: Yes. The number of hours each day he actually worked they said was 15.

Mr. Park: And the balance of the time he was employed in any way the company might see fit, in taking care of the engine, in watching it, in giving it water and coal, I suppose.

Mr. Stone: You do not know from that message whether or not he had to run for coal and water to some distant point?

Mr. Keefe: I do not; no, sir.

Mr. Stone: And it is also a fact, is it not, that a man might be on duty, sitting on his engine, and yet performing no duty, but it is using his time—just the same as a man might sit here in this court room all day and not do any work, and yet he would be on duty.

Mr. Burgess: There is nothing in the telegram that indi-

cates that he was relieved from duty at the expiration of 15 hours, is there?

Mr. Keefe: No; there is nothing more than what I have read.

Mr. Park: I so understood it—that the actual time he was working was 15 hours.

Mr. Keefe: About 15 hours.

Mr. Burgess: The superintendent states there, if I understood the telegram, that he was on duty 15 hours, or, rather, about 15 hours. Is that right?

Mr. Keefe: Yes; an average of about 15 hours per day.

Mr. Burgess: Then the question arises as to how far the word "about" reaches there. It might be 17 hours and still be about 15. Then again he says he received a reasonable time for rest. The question is how far that would reach. There is, however, the concrete acknowledgment that the time was allowed continuously up to the extent that it is shown on the payroll. Is that right?

Mr. Keefe: The payroll shows he was compensated for 23.8 hours.

Mr. Park: For 23.8 hours?

Mr. Keefe: A total of 452.5 hours in the 19 days, or an average of 23.8 hours per day.

Mr. Sheean: That is merely an average for that whole period—23.8 hours?

Mr. Keefe: Yes.

Mr. Sheean: He was on continuous time probably all except a day or two.

Mr. Keefe: Yes.

Mr. Burgess: And probably held responsible for the engine during the time he was compensated for.

Mr. Sheean: I do not know, excepting the chat you and I had with Mr. Best as to how they actually did that, on construction work, having an old, fairly experienced fireman and engineer out on construction work and having a third man to do the firing while the engineer slept. The experienced fireman in this spotting work would be able to move the engine for eight hours. This man, then, who was in charge, both the engineer and fireman, were on continuous pay the full 24 hours, although they were taking their eight hours rest in turn.

Mr. Burgess: That might be so, but in the final analysis, if anything happened to the engine, the engineer would be the party responsible.

Mr. Sheean: I think that is true, Mr. Burgess. You and I both could not understand how a man could be 23.8 hours actually working, and it was only to get as clear as we could the fact that that was the time he was under pay, and what his opportunity for rest actually was there, that this was brought forward.

Mr. Park: Did I not understand, from the schedule of that road, that a man was the judge of his own physical condition, and could call for a rest if he wanted it at any time?

Mr. Keefe: That is the road that has that rule on it, as I recall it now.

Mr. Byram: How long did you say this man worked—how many days?

Mr. Keefe: 19 days; a total of 452.5 hours.

Mr. Byram: 19 days?

Mr. Keefe: Yes.

Mr. Byram: Is it not manifestly impossible for a man to work 24 hours a day for 19 days?

Mr. Keefe: I think that is perfectly apparent.

Mr. Byram: Then it must be that he was getting some time to rest during that period?

Mr. Keefe: I am sure he must have been.

Mr. Stone: Under the Canadian schedule, what constituted a day's work for an engineer and fireman in construction service?

Mr. Keefe: I have not the schedule, but I will look it up.

In work train service, the basis of a day's pay is 100 miles or less, 10 hours or less.

Mr. Stone: Then, this man, in working 23.8 hours per day, worked about 2 1/3 days each day in order to get that money, did he not?

Mr. Keefe: He was compensated for that much time. He was compensated for that many hours.

Mr. Stone: According to the figures of the telegram, 15 hours a day, he worked a day and a half each day in order to get that much money?

Mr. Keefe: He was compensated, as I recall it, for 23.8 hours.

Mr. Stone: But if he worked about 15 hours it would be a day and a half, would it not, according to their own articles?

Mr. Keefe: A man who worked 12 hours, Mr. Stone, under the provisions of their schedule,—he worked 15 hours that day.

Mr. Stone: What is a day; 10 hours or less, is it not?

Mr. Keefe: That is the basis of a day's pay, yes, sir.

Mr. Stone: And when he worked 15 hours, he worked a day and a half, did he not, as a basis for computation?

Mr. Keefe: His basis of a day's pay is 100 miles or less, 10 hours or less. He worked 15 hours, Mr. Stone. I do not know what you are trying to get at.

Mr. Stone: Oh, yes; you know, all right; but if you don't want to answer the question, we will pass it.

Mr. Keefe: He worked 15 hours that day.

Mr. Stone: He worked a day and a half that day, did he not, under their schedule? Yes or no. Answer, and then explain it afterwards.

Mr. Keefe: As I understand the schedule, he worked 15 hours, and was compensated for 23 hours.

Mr. Stone: The case is hopeless, Mr. Chairman. I will pass on.

Mr. Sheean: There were three other engineers that you were asked to obtain information about, as to what they would have received had the proposition been in effect there on the Santa Fe, whose wages were named, and as to which the question was asked as to what their wages would have been had this proposition been in effect, and also as to why one of the men on that Santa Fe is shown as earning only $135—whether in fact he did lay off or whether he was available for duty during the entire month.

Mr. Keefe: It was in connection with Sheet 103 of Exhibit 26 that the Chairman asked as to the details of the $228.53 earned by O. A. Willett, engineer of a through freight service train between Wellington and Waynoka, and at the same time called attention to Engineer O. E. Hendren, having worked 15 days and earning $145.47. As I recall it, query was made as to why Engineer Hendren only worked 15 days. The telegram from the superintendent of that division said:

"Engineer Hendren laid off of his own accord 3rd to the 9th, inclusive, and 15th and 16th."

The question was also asked me if there would be any increase in the compensation received by Engineers Hendren, Jackson and Willett if the men's proposal had been in effect in October. I have the information from the superintendent as to what the earnings of each of these engineers would have been, if their proposition had been in effect.

Mr. Sheean: What did each of them receive this month? Read the name, the amount received, and then the amount which that engineer on that run would have received, under this proposal.

Mr. Keefe: Engineer Hendren, who actually earned $135.47 for the fifteen days' service, would have received, if the men's proposal had been in effect, $191.44.

Mr. Byram: How much increase?

Mr. Keefe: An increase of something over 40 per cent. Engineer C. Jackson, for the 28 days' service, received $218.86. If the men's proposal had been in effect, he would have received $351.76, or an increase, approximately, of 60 per cent. Engineer O. A. Willett, for the 24 days' service, actually received $228.53. If the men's proposal had been in effect, he would have received $335.76, or an increase of about 50 per cent.

Mr. Byram: How do those increases, in those individual cases, compare with the general percentages of increase which you show on one of your exhibits, as representing the increased cost of these proposals, applied to the railroads, as a whole?

Mr. Keefe: Applying them to the railroads as a whole, in all classes of service, it was 51 per cent, in round figures.

Mr. Byram: In this case you have one engineer who would have received an increase of 60 per cent?

Mr. Keefe: Yes.

Mr. Byram: Another of 50 per cent?

Mr. Keefe: Yes.

Mr. Byram: And another of 40 per cent?

Mr. Keefe: Yes.

Mr. Sheean: Can you explain, Mr. Keefe, just in a general way, why, on different runs, different men may be affected in a different percentage of pay?

Mr. Keefe: If I had the details of this one, which I ought to have received this morning, I would have been able to answer that more intelligently, but as a general proposition, it is because of the difference in the amount of service actually performed by each one of these engineers. In some of the cases, one engineer may have been longer on the road than the other. He may have had a different class of engine and drew a different rate, may have been one reason, and the percentages will not work out identically with each individual engineer on any railroad, because of the variation in each man's class of work.

Mr. Sheean: Now, as to this sheet No. 5, Mr. Keefe, is there anything you wish to explain?

Mr. Keefe: No, not other than calling attention to that basis upon which those miles are shown.

Mr. Sheean: And it has been assembled in the form that you understood from the questions asked last night, was thought desirable to have assembled, from the basic figures shown on these larger exhibits?

Mr. Keefe: Yes, sir.

Mr. Burgess: This represents the actual miles run, Mr. Keefe?

Mr. Keefe: Yes.

Mr. Burgess: It does not show any constructive mileage?

Mr. Keefe: I did not so understand it, no, sir; just the actual miles.

Mr. Burgess: Thank you.

Mr. Sheean: I think that is all, in connection with this sheet No. 5.

RE-CROSS EXAMINATION.

Mr. Stone: It is remarkable how the average miles per day, in each one of the tables, in each class of service, remains the same.

Mr. Keefe: I do not see anything remarkable about it, Mr. Stone.

Mr. Stone: I do, when the average miles per man varies quite a good deal.

Mr. Keefe: Yes, because the miles made per man is by reason of the fact that a man working one, or two, or three days in the month, is used as a divisor, equally, as a man who

worked the entire month, the thirty or thirty-one days. Both are used on the same plane, as a divisor. That affects your average miles per man, but the average miles made per day by each man, if he only worked one, or two, or three days, will not vary materially, or vary much from the man who worked thirty or thirty-one days. So that, to my mind, there is no inconsistency whatever in the average miles per day, per man. That is really what it is.

Mr. Stone: And when you get down to the survival of the fittest, in the last table on the sheet, it is practically the same result, is it not, as it is in the first?

Mr. Keefe: Yes; the men that are excluded for the number of days they made, made approximately the same miles per day as the men who remained in the service did.

Mr. Stone: That is all.

The Chairman: We will take a recess until 2:30 o'clock.

(Whereupon, at 12:30 o'clock P. M., a recess was taken until 2:30 o'clock P. M.)

After Recess.

J. H. KEEFE was recalled for further examination and having been previously sworn, testified as follows:

Mr. Stone: Before you leave 29,—are you through with it?

Mr. Sheean: Yes.

Mr. Stone: Mr. Keefe, I should like to ask you another question or two on this sheet No. 5, if I might. I have been checking it over a little at the noon hour. Take, for example, in your first table at the top of the page. How do you account for the difference in the number of miles made by engineers in local service, and the number of miles made by firemen in the same service for the month? What makes the difference?

Mr. Keefe: This is the number of miles made by engineers that were entirely in local or way freight service. 1,844 engineers made 3,812,027 miles. The 1,477 firemen made 2,566,617 miles. The difference between the two is because as many firemen did not work in the local or way freight service as did engineers. The possibilities are that they were used in either the through freight or some other class of service, and are shown

in the combination services, if you please. Do I make myself clear?

Mr. Stone: Yes, I get the idea, and yet I must confess that I have not understood why there should not be as many miles for firemen shown, in any class of service, as there are miles for engineers—actual miles made.

Mr. Keefe: These are the actual miles made by the engineers and firemen who remained in through freight service entirely—local freight service entirely, and, of course, if a fireman entered any of the other classes of service, the passenger, or through freight, or yard, he would be taken out of that class from the local or way freight entirely, and go into one of the other classifications.

Mr. Stone: Then it would naturally help to swell the mileage in the other classifications, wouldn't it?

Mr. Keefe: Yes.

Mr. Stone: But the ratio practically holds the same all the way through. For instance, you have seven million miles, approximately, for engineers in through or irregular freight service, and you only have five million miles, approximately, for firemen in through or irregular freight service.

Mr. Keefe: That is where they are entirely in the passenger, entirely in suburban passenger, entirely in through or irregular freight service, or entirely in local or way freight service. Now, if a man were engaged, during October, 1913, in both the local and through service, he would not be shown in either one of these tabulations, but would be shown in the classification where we have what we have designated for the engineers, engineers working partly in local or way freight service, and partly in other service, the greater portion of his wages being derived from local or way freight service; or else in the engineers working partly in through or irregular freight service, and partly in other service, the greater portion of the wage being derived from through or irregular freight service. It is not intended to imply or state that that was all of the local or way freight service that was performed by the engineers as a class, or by the firemen as a class.

Mr. Stone: It is a fact then that there are a lot of miles made that do not show here at all?

Mr. Keefe: A lot of miles made in local or way freight service that are not shown on any of these statements at all.

Mr. Stone: The same is true of through freight?

Mr. Keefe: Yes, but they are all shown in our payroll statements.

Mr. Stone: And the same is true of passenger and suburban service?

Mr. Keefe: Yes.

Mr. Stone: And that same thing would apply, then, in the average of miles per day? There are a lot of men not shown in the average per day?

Mr. Keefe: Who worked in local service but did not work entirely in the local service.

Mr. Stone: In the average per day, you only show one class of service that falls below the 100 miles or less per day for the average day's work, do you not, and that is local?

Mr. Keefe: Yes.

Mr. Stone: And, in your other tables, you only show 30 per cent of the locals as being on a mileage basis at all; and the rest are on hours?

Mr. Keefe: Yes, sir.

Mr. Stone: So that, regardless of all that has been said and done, the fact remains that the average man in the average daily service of a railroad does run out his 100 miles or more for a day, does he not?

Mr. Keefe: In some instances he does, but not as a general proposition.

Mr. Stone: In the instances you show here he does, does he not?

Mr. Keefe: In that case I do not—

Mr. Stone: Average miles per day as shown in the last column all the way through, except local—

Mr. Keefe: Let me have the question read.

(Question read, as follows: "So that, regardless of all that has been said and done, the fact remains that the average man in the average daily service of a railroad does run out his 100 miles or more for a day, does he not?")

Mr. Keefe: Taking them as an average, they make over 100 miles a day, yes. I am speaking of their mileage made in a 24-hour period.

Mr. Stone: That is all.

RE-DIRECT EXAMINATION

Mr. Sheean: Mr. Keefe, as I understood you last evening, one reason for not showing on Sheet 5 all of the employes, or for having the Sheet 5, in which you attempted to show the mileage, was because of the intermingling in different classes of service which showed through these other exhibits?

Mr. Keefe: Yes, sir.

Mr. Sheean: So that the only way in which you could segregate the mileage specifically for these different classes, was to take the men who, in that month, worked in a single class of service?

Mr. Keefe: Yes; entirely.

Mr. Sheean: And this page 5 simply takes the miles which were made by men who were engaged exclusively in one class of service during that month?

Mr. Keefe: Yes.

Mr. Sheean: Just before passing that number 29, too, Mr. Keefe, there is one matter that I wanted to direct your attention to. A question was asked this morning by Mr. Carter, so framed that it might leave the impression that, in the reports received as to hostlers, there were certain roads which did not recognize that they employed hostlers. On Exhibit 8, Section 37, page 1657, there is an index of the roads which report money paid to men carried on the payrolls as hostlers. Will you just read, please, the road or roads in which no service as hostlers is shown?

Mr. Keefe: The Grand Canyon Railway; Santa Fe Lines; the Gulf & Interstate Railway—

Mr. Stone: About how many crews have they on those two railroads?

Mr. Keefe: A very small number.

Mr. Sheean: As shown on Exhibit No. 1, that railroad operated 64.08 miles.

What is the next one that shows no report of hostlers?

Mr. Keefe: The Gulf & Interstate Railway, 75 miles in length.

Mr. Sheean: And the next one?

Mr. Keefe: The Pierre, Rapid City & Northwestern Railroad.

Mr. Sheean: And that—

Mr. Keefe: That is 165 miles, as I recall it.

Mr. Sheean: What is the next one?

Mr. Keefe: The Wyoming & Northwestern Railway.

Mr. Sheean: What is the next road?

Mr. Keefe: The Bellingham & Northern.

Mr. Sheean: Do you know whether the mileage of that is shown separately or not?

Mr. Keefe: It is a very, very small mileage. I do not recall the mileage figures.

Mr. Sheean: 63.8 miles, as shown on Exhibit 1.

Mr. Keefe: The Fort Worth Belt Railway.

Mr. Sheean: That also is a very small railroad, is it not—18.1 miles?

Mr. Keefe: Yes, it is a switching proposition entirely; a switching line.

The Louisiana & Arkansas, 286 miles, as I recall it.

Mr. Stone: You seem to have forgotten the testimony of Mr. Green the other day in regard to his hostlers.

Mr. Keefe: The testimony he gave the other day was, as I recall it, the estimated increase that he would have to pay in the way of additional compensation. He had $210 worth of hostlers, as I understood the figures.

Mr. Stone: Yes.

Mr. Keefe: But they were not exclusively hostlers at all.

Mr. Stone: They used him as a machinist and he got one-twelfth of the hourly rate for a machinist.

Mr. Keefe: They were not employed as hostlers; he had no employes as hostlers; he reported none on his payroll.

Mr. Sheean: What is the next road?

Mr. Keefe: The Beaumont & Great Northern Railway; as I recall it, about 50 miles.

The New Orleans, Texas & Mexico Railroad and the Orange & Northwestern and the Beaumont, Sour Lake & Western, shown as one. They report no hostler service.

The Denison & Pacific Suburban Railway, 18 miles, I think.

The Weatherford, Mineral Wells & Northwestern Railway.

Mr. Sheean: And, aside from those as shown by this index, all of these railroads, as shown by this Exhibit 28, report men

who were, in October, 1913, carried on the payroll as hostlers?

Mr. Keefe: Yes.

Mr. Sheean: Just to make it perfectly clear, Mr. Keefe, in the showing in one of your previous exhibits as to the increased cost that would be brought about by the proposal of the men in creating positions of hostlers and fixing rates of pay for them, all who would be hostlers and who would take a hostler's rate of pay, under their definition, is shown in certain of your previous exhibits.

Mr. Keefe: Yes; Exhibit 3.

Mr. Sheean: Exhibit 3; while Exhibit 29 simply takes the actual payroll for that month, and shows those who were carried on that payroll as hostlers.

Mr. Keefe: Yes.

Mr. Sheean: That was all as to 29.

Mr. Stone: Mr. Keefe, what percentage of mileage represented, as represented here, is represented by that list of mileage you just read, where they have no hostlers?

Mr. Keefe: At the outside guess, I would say it is 5 per cent. I have made no calculation at all on that.

Mr. Stone: Nor an estimate?

Mr. Keefe: No, a guess.

Mr. Stone: Pure, unadulterated guess?

Mr. Carter: Do I understand, Mr. Keefe, it is only where the men are carried on the payroll as hostlers that they are reported?

Mr. Keefe: Yes.

Mr. Carter: On the Chicago & North Western Railroad, there is no such thing as a hostler on that road. They are called engine despatchers.

Mr. Keefe: I probably should have called them hostlers and despatchers.

Mr. Carter: Now, suppose some other road, instead of calling them engine despatchers, like the Chicago & North Western does, would call them something else, I don't care what, then you would give the Chicago & North Western the right to give its hostlers and would exclude all other roads that call their hostlers by any other name?

Mr. Keefe: There were not any other roads excluded, other than those I specifically mentioned now.

Mr. Carter: This is a hypothetical case. If the Grand Trunk Railroad was included in here, and you asked for information concerning engineers, they would not have any engineers on the Grand Trunk Railroad, would they? They are either engine drivers or they are engine men?

Mr. Keefe: That is the first I knew that there was any such classification.

Mr. Carter: Therefore, under those instructions at the bottom of this sheet, or as I understood the instructions, if you were calling for similar information for engineers, the Grand Trunk would not furnish any information, because they have not any engineers there. They are all engine drivers or engine men. Is that right?

Mr. Keefe: If they gave us returns on there, with no engineers, of course, we would ask them as to why they did not give the information for the engineers. I do not think they are parallel cases.

Mr. Carter: If there was a road where they have an abundance of hostlers and have not carried them on their payroll as hostlers—might be that they would call them handy men, I do not know—then those hostlers would be excluded from this compilation?

Mr. Keefe: Not if they were carried as hostlers and did no other work. If they did shop work, they would not be shown.

Mr. Carter: If they did any other work than the hostlers work,—shop work—they would not be shown?

Mr. Keefe: No, they would not be shown. As I said this morning, as a matter of information, we called upon the railroads to give us a list of such men that were excluded, and their total salaries, as I recall it now, were about $10,000 for October.

Mr. Carter: Does not this indicate conclusively that there was a great misunderstanding as to what was wanted, when they were filling up these forms on which you base your computations?

Mr. Keefe: No, sir.

Mr. Carter: And the North Western concluded that an engine despatcher was really a hostler, and so reported.

Mr. Keefe: They reported all of the men who were carried upon their payroll and were doing hostling work, whether they were called despatchers or hostlers.

Page 1664 is the commencement of the men on the North Western Railroad, and shows the number of men who were reported, and the earnings that they actually received.

Mr. Carter: Then it was the intention that even though a man was a hostler, if he was not called a hostler, and did some other work, he was not to be reported.

Mr. Keefe: Read that question.

(Question read by reporter.)

Mr. Keefe: The question never was raised during any of the period of our making the data at all, Mr. Carter. That question never came up. It did come up in connection with some hostlers who were carried as hostlers and who were doing shop work, and were carried on the shop roll in addition to their duties as hostlers, as to whether or not they should be reported, and in accordance with the instructions, those men were not included in these computations to an extent that, as I stated before, was about $10,000.

Mr. Carter: That is all.

Mr. Stone: That is all.

Mr. Burgess: Mr. Keefe, I am somewhat puzzled once more and will ask you to help me out. On Exhibit 10, sheet 3, the general heading reads as follows: "Comparative Statement of Speed of Trains Operated in October, 1910, and October, 1913, Local or Way Freight Service." On that part of the exhibit designated as October, 1913, under the item heading, "Number trains that accomplished their run at speed greater than ten miles per hour," column 6, under the heading "Total Actual Miles," they show 1,921,557, is that right?

Mr. Keefe: Yes.

Mr. Burgess: Then under the heading "Number trains that accomplished their run at speed ten miles per hour or less, 4,445,579," is that right?

Mr. Keefe: Yes.

Mr. Burgess: According to my computation, those two sums added together would equal 6,367,136. Is that right?

Mr. Keefe: Yes. I have not verified the figures.

Mr. Burgess: Well, on this exhibit, then, we show total miles in local or way freight service to be 6,376,136.

On Exhibit No. 9, sheet No. 5, you show the number of miles in local freight service as 3,812,027, which, if I am correct

in my computation, would be an actual loss of 2,555,109 miles. I am trying to ascertain why that discrepancy should exist between the two exhibits.

Mr. Keefe: Because this exhibit only includes the mileage of the engineers who performed all of their service during the month as local or way freight engineers. In other words, they were confined exclusively to that service. That is, there were 3,812,027 miles made by engineers in exclusive local service. There were some other engineers who performed local service, that in addition to their duties as engineers ran in through freight, passenger service or helper service, or work train service, or some other class of service, so they were considered in our classification as men who were in other classifications. They were shown under other classifications.

Mr. Burgess: But the heading on Exhibit 10 does not so state?

Mr. Keefe: Exhibit 10 is the total number of miles made by all local trains, regardless of who the engineers were. That is, the number of miles made by the aggregate of the local trains run. That is, the grand total of mileage of all local trains. The mileage made here by the engineers is only that part of the total mileage that was made by engineers exclusively in local service.

Mr. Burgess: But Exhibit 10 specifically provides on the general heading that all the tabulations underneath are local or way freight, and does not take into account the item that you now state that it does.

Mr. Keefe: My statements were with reference to sheet No. 5 of Article 29.

Sheet No. 3 of Exhibit 10 shows the total mileage made by local or way freight trains. That is, the total is the grand total of all the miles made in local or way freight service.

Now, this sheet No. 5, of Exhibit 29, is the mileage made by engineers who confined all of their service in the month of October to the local or way freight service. There were other men, who ran local or way freight trains, who did other classes of service, and therefore, their miles or time would not be shown on sheet No. 5 of Exhibit 29.

Mr. Burgess: If that is true, then why did not sheet No.

3, of Exhibit No. 10 so state? In here, it says, "Local or way freight service," without any other specifications.

Mr. Keefe: I say, Mr. Burgess, that that does not include all of the local or way freight service.

Mr. Burgess: Then your Exhibit No. 5 says "Engineers entirely in local or way freight service," therefore the headings would imply the same meaning, with a differential of two million miles.

Mr. Keefe: Sheet No. 5 of Exhibit 29 does not purport to be, nor never did purport to show the wages or number of days of the engineers in local or way freight service.

Mr. Burgess: No, but does show the mileage.

Mr. Keefe: Only for those engineers who worked the entire month of October in local or way freight service.

Mr. Burgess: Yes, and sheet No. 3 says "Local or way freight service," therefore that would imply there was no other service tabulated under that name, is there?

Mr. Keefe: There is no other service tabulated under sheet No. 3 of Exhibit No. 10 whatever.

Mr. Burgess: Then why don't the two sheets compare, when in both columns it says "The total actual miles?"

Mr. Keefe: I will start off again, Mr. Burgess, if you please. Exhibit No. 10, Sheet No. 3, when you consider columns Nos. 8 and 6 together, is the total actual miles made by all local trains in the month of October, regardless of the engineers or firemen who operated them. That is the total train miles made by local trains. That is the aggregate local mileage.

Mr. Burgess: Yes.

Mr. Keefe: Sheet No. 5 of Exhibit No. 29, the mileage shown of 3,812,027 only represents the miles of the engineers in local or way freight service, who confined their duties entirely, in the month of October, to local or way freight service. In other words, an engineer who may have worked in through service, say one trip only, and the balance of the 27 days or the 31 days, if he worked in the local or way freight service, he would not show any of his mileage whatever on Sheet No. 5, Exhibit No. 29.

Mr. Burgess: That accounts for the difference?

Mr. Keefe: Yes, sir.

Mr. Stone: Mr. Keefe, just one more question, please. If

you would take all this mileage and add it together in these different classes of service, you would not come anywhere near getting all the miles that were made during the month. Take the miles made in passenger, miles made in local freight, miles made in through freight, you would be short a lot of miles that don't show here at all on this exhibit?

Mr. Keefe: Sheet No. 5, Exhibit 29?

Mr. Stone: Yes.

Mr. Keefe: Yes, Mr. Stone, because this mileage only includes the men whose duties were entirely in each of the four specified services. Take the largest section of the engineers, Section No. 6, Engineers working partly in through or irregular freight service and partly in other service, the greater portion of wages being derived from through or irregular freight service, there is not one mile of any of those men shown on that sheet that is included in the mileage of this statement.

Mr. Stone: How do you account for the fact that there are so many more engineers shown in each class of service than firemen? Do they work more regularly, or do the firemen lay off more?

Mr. Keefe: The engineers, a greater number of them confine their duties exclusively to one class of service, more than do the firemen.

Mr. Byram: You mean by that, that an engineer is not as likely to perform service as a fireman, as the fireman is to perform service as an engineer and fireman both?

Mr. Keefe: Yes, he does not change his class of service as much as a fireman does.

Mr. Stone: But in no class of service shown here do you show as large a number of firemen as you do engineers?

Mr. Keefe: On Sheet No. 5, Exhibit 29?

Mr. Stone: Yes.

Mr. Keefe: In the exclusive service, that is true. There are not as many firemen that stay entirely in the same branch of service as the engineers.

Mr. Stone: That is all.

Mr. Sheean: Mr. Keefe, just to make perfectly clear by reference to your exhibit itself, and to the local or way freight about which Mr. Burgess was inquiring, if you will turn to page

411, Exhibit 26, Section 8, is under the heading of "Engineers working entirely in local or way freight service."

Mr. Keefe: Yes.

Mr. Sheean: Is the mileage which you show on this sheet No. 5 of Exhibit 29, the mileage which was made by the engineers working entirely in local or way freight service, and whose names are given from pages 411, down to the completion of Section 8 of that exhibit?

Mr. Keefe: Yes, to 437, inclusive.

Mr. Sheean: Then, beginning at page 438, you have engineers working partly in local or way freight service and partly in other service, the greater portion of wages being derived from local or way freight service. Would any of the mileage of the men shown in Section 9 be carried out in this Sheet 5 of Exhibit 29?

Mr. Keefe: Neither the mileage, the men, the days, nor any of the information whatever is shown.

Mr. Sheean: And further, to illustrate the suggestion that you made a moment ago, I notice on page 439, the first one of these engineers who worked partly in local or way freight and made the greater part of his earnings, under the Eastern Division of the Santa Fe, Mr. R. H. Brentnell, is shown as working on way freight between Ottawa and Lawrence, 27 days, and making $169.10 in local, and one day in through freight, Ottawa, Topeka and Ottawa, making $5.30 in through freight. Now, he is carried in Section 9 here, because the greater part of his earnings were in way freight, but in the summary, and for the reasons stated last night as to why you had endeavored to summarize mileage for the entire class, those who worked in different classes of service in different parts of the month, are not carried out on a mileage basis?

Mr. Keefe: That is correct.

Mr. Carter: Mr. Keefe, if you will turn to the section in that book that shows engineers working entirely in local or way freight service, and then turn to similar sections in the other book with regard to firemen, you will notice that vastly more firemen are not available than there are engineers.

Mr. Keefe: I did not notice it, Mr. Carter, but I will be glad to look.

Mr. Carter: I have a man checking it up now. I think you

will find that firemen lay off a great deal more than the engineers do.

Mr. Keefe: I would not consider that there were a vastly greater number of firemen that were not available for duty than engineers.

Mr. Carter: That is in this special service?

Mr. Keefe: You said in local way freight. I am confining my remarks to your service, for the reason that the total number of firemen that were not available for duty, who earned less than the $70, numbered 370, in local or way freight service, while the number of engineers who were not available, approximately, was 200.

Mr. Carter: What is the difference, you say?

Mr. Keefe: 170.

Mr. Carter: And 200?

Mr. Keefe: No, 370 firemen and 192 engineers.

Mr. Carter: About 50 per cent?

Mr. Keefe: There were 1,844 engineers in local or way freight service, counting every man who worked one or more days, while the number of engineers that were not considered because they were not available for duty, is 192, leaving 1,652 engineers with local or way freight service.

Mr. Carter: Does that apply in about that same proportion in all other classifications?

Mr. Keefe: No, as to firemen, there are 1,477 in local or way freight service, as a total, while there were 1,107 of them that were considered as being available for duty the entire month, leaving 370 that were not taken into account in arriving at the proper average.

Mr. Carter: Are the names of engineers found in Exhibit 26, and the names of firemen in Exhibit No. 27, for identically the same total mileage? That is, do these exhibits show the total mileage made by both engineers and firemen?

I will ask it in a little different way, so that you will understand.

Why does it take so much larger a book to print the names of the firemen than it does to print the names of the engineers?

Mr. Keefe: There were all told, about 32,321 firemen as against 28,446 engineers.

Mr. Carter: I have heard it said that on the highly paid

runs they were earning so much money on the trip that they could not afford to lay off. Does that apply to firemen, or could they lay off without losing as much as an engineer?

Mr. Keefe: They would not lose as much money when they laid off, as an engineer.

Mr. Carter: Do you think that accounts for a fireman laying off, because he can afford to, and will not lose as much money for the trip? Or, do they not lay off because they are tired and have to lay off?

Mr. Keefe: As I stated yesterday, the whole force of firemen is affected, oil burning locomotives to the same extent as coal burning locomotives, and from my own experience, I know that the firemen do not lay off on oil burning locomotives because of the physical labor; because I am from an oil burning road, and I know in that case it is not physical labor that requires the firemen to lay off.

Mr. Carter: Then a fireman could follow one of these Mikados, burning 25 tons of coal just as easy as he could practically do anything else, without laying off?

That is all.

RE-DIRECT EXAMINATION.

Mr. Sheean: This information that Mr. Carter is having tabulated appears in detail, name by name, does it not, as to engineers working entirely in local or way freight service who were not available for duty during the entire month, beginning at page 1,733, and down to and including page 1,735?

Mr. Keefe: Yes; it gives the individual names of those men that were not included. That is shown.

Mr. Sheean: So, there is summarized, beginning at page 1,807, the firemen working entirely in local or way freight service, who were not available for duty the entire month?

Mr. Keefe: Yes.

Mr. Sheean: Giving all of their names, and the reasons why they laid off?

Mr. Keefe: Yes.

Mr. Sheean: No; giving under the head of "Remarks" whatever was reported by the railroads as the reasons why not available.

Mr. Keefe: Yes; it shows a greater number of men used in emergency service also than is the case with the engineers.

Mr. Sheean: Roundhouse men called for single trips, and things of that kind?

Mr. Keefe: Yes.

Mr. Nagel: Is it not true that, as a rule, the engineers are older men than the firemen?

Mr. Keefe: Oh, yes.

Mr. Nagel: Is it not likely that a larger percentage of the engineers have assumed responsibility for the support of a home than is the case among the firemen, who are younger men?

Mr. Keefe: Yes; that is true.

Mr. Nagel: Is it not fair to assume that they are a class of men who have settled down to their occupation with more certainty and decision than the younger men?

Mr. Keefe: That is entirely true, yes.

Mr. Nagel: Would not that account, in a measure, for more regular service among the engineers than you would find among the younger men?

Mr. Keefe: Yes. The details of these men laying off show that in the case of the firemen there is a lot of emergency service. The men work one, or two, or three days in the shops, and then come in to the firing service, and we show every one of those men in our exhibit. That goes to swell up the total number of men, and explains the increase between 28,000 engineers and 32,000 men in the firemen's service; that is 32,000 men to man the fire service as against 28,000 engineers.

Mr. Sheean: I am through with Exhibit 29.

Mr. Stone: So are we.

Mr. Sheean: Mr. Keefe, has there been compiled under your supervision Exhibit No. 30?

Mr. Keefe: Yes.

(The document so offered and identified was received in evidence and thereupon marked "Railroads' Exhibit No. 30, February 2, 1915.")

Mr. Sheean: Mr. Keefe, I think you have given us before, in one of your exhibits, some information as to the relationship of assigned service, and irregular service. Just to make clear what is meant by "Assigned passenger service," and other

assigned service, I wish you would explain to the Board what is meant by that.

Mr. Keefe: By "assigned service" is meant that class of train service that is performed by regular assignments or regular scheduled runs; that there is a certain number of men running, day in and day out, week in and week out, month in and month out, on that particular class of service, and they do not vary from it. They are in that assignment or that particular class of service exclusively.

The Chairman: Men whose employment is regular?

Mr. Keefe: Yes, sir.

Mr. Sheean: Just tell us in a general way what is covered by this exhibit, and then we will take it up in detail.

Mr. Keefe: In a general way this shows the amount of mileage made by the assignment in each of the different classes of service, the number of hours on duty, the wages that are paid under those assignments, the number of men that it takes to regularly fill the assignments, the average hours on duty, the average pay per man for the assignment; and we have shown the highest wages paid one man in each of the assignments on each road, and the lowest wages paid one man who worked full time during the month; then, in column No. 11, the total number of men who worked full time during the month, and column No. 12, the total mileage made in assigned service by other than assigned men.

Mr. Nagel: Is that all shown under the total of engineers' mileage?

Mr. Keefe: The total is the mileage of the assignments, yes.

Mr. Sheean: Now, Sheet No. 1 covers the engineers in assigned passenger service?

Mr. Keefe: Yes, that is the passenger service.

Mr. Sheean: Now, before taking up in detail what is shown on the sheets severally, let us run through hurriedly just what the other sheets are.

Mr. Keefe: Sheet No. 2 is the assigned local or way freight service.

Mr. Sheean: And the same information assembled in the same way as for the assigned passenger service?

Mr. Keefe: Yes.

Mr. Sheean: Sheet No. 3 takes the assigned mixed train service?

Mr. Keefe: Yes.

Mr. Sheean: And the same information assembled in that as there was in passenger?

Mr. Keefe: Yes.

Mr. Sheean: Sheet No. 4, "Assigned helper and pusher service?"

Mr. Keefe: Yes.

Mr. Sheean: Same form as the other—

Mr. Keefe: Yes.

Mr. Sheean: Preceding pages?

Mr. Keefe: Except in that case we do not show the mileage; we show the hours; because the mileage in assigned helper and pusher service is more in hours than it is in miles.

Mr. Sheean: Then, Sheet No. 5, "Engineers in assigned yard service?"

Mr. Keefe: Yes.

Mr. Sheean: And that also is on the basis of hours?

Mr. Keefe: Yes.

Mr. Sheean: You made no effort to reduce to any formula the mileage appearing in yard service?

Mr. Keefe: No.

Mr. Sheean: Now, Sheet No. 6 covers engineers in through or irregular freight service?

Mr. Keefe: Yes.

Mr. Sheean: Now, I wish you would explain just what is meant by "through or irregular freight service" as distinguished from assigned service.

Mr. Keefe: Through or irregular freight service is what you might term the intermittent service; that is, the service that is run as the traffic requirements of the road demand; first in first out. It is irregular in that there are no assignments made of that, and men are assigned to that class of service exclusively.

Mr. Sheean: Just by way of a general illustration, Mr. Keefe, the passenger trains upon the road will run upon a regular scheduled leaving time from terminals?

Mr. Keefe: Yes.

Mr. Sheean: The local or way freight ordinarily has a definite leaving time on starting out from its terminals?

Mr. Keefe: Yes.

Mr. Sheean: The through and irregular trains, as to number or when they shall run, are dependent upon the business obtainable at that particular point?

Mr. Keefe: Yes.

Mr. Sheean: And are without schedule as to leaving time or schedule as to arriving time?

Mr. Keefe: Yes.

Mr. Sheean: To a layman, they are wild trains, are they?

Mr. Keefe: Well, that is—

Mr. Sheean: Through or irregular freight service means those that are not regularly scheduled?

Mr. Keefe: Yes.

Mr. Sheean: Then the remaining sheets take up for firemen in the same order as the preceding sheets for engineers?

Mr. Keefe: Yes, sheets 1 to 6 are for engineers, and 7 to 12 are for firemen.

Mr. Sheean: Now, Mr. Keefe, on Sheet No. 6, the form in which that information as to through or irregular freight service is assembled is somewhat different from the assigned service. Will you explain just what the differences are and why there is difference in obtaining that information?

Mr. Keefe: The number of men regularly assigned in through or irregular freight service is not shown, because the fluctuation in the number of men in that class of business is considerable. There is, generally speaking, the number of men in that class of service only necessary to take care of the through or irregular freight service and the number of men that are in that service are increased or decreased, according to the flow of the traffic or the amount of business that is to be handled.

Mr. Sheean: That matter of regulating the board, that has been spoken of here, generally pertains to the handling of through or irregular freight service.

Mr. Keefe: Regulating the through or chain gang crews.

Mr. Sheean: Now, as to the form, was there anything more that you wished to explain, before we go back, as to the substance shown on Sheet 1, or does what you have already stated

give a fair idea of the general information sought to be assembled by this?

Mr. Keefe: I think I have given a general view of what the exhibit tends to show.

Mr. Sheean: Now, taking Sheet No. 1, engineers in assigned passenger service; column 1 shows the total engine mileage for the month; that is, irrespective of whether a man running that passenger train today was in some other kind of service the day before yesterday. You simply take the actual passenger mileage?

Mr. Keefe: Yes.

Mr. Sheean: And whether a man was in or out of that service, would not affect column 2, in which you show total hours on duty of the men in assigned passenger service?

Mr. Keefe: That is correct.

Mr. Sheean: Column 3 also shows the total wages paid for the passenger service, carrying out into this service, irrespective of the days a man was in a service, if he made a passenger run, the part of his wages that was paid for passenger run would be carried here?

Mr. Keefe: Yes.

Mr. Sheean: Now, "Number of men regularly assigned," in what manner was that information obtained?

Mr. Keefe: That was the number of men who were required to take care of the assignment. That is the number of men in each assignment.

Mr. Sheean: If, for instance, upon runs made every day, a train in each direction, one train each way between terminals, if, in the operation in that particular district, three crews were assigned, the swing crew taking ten days off of each of the others, and running that particular assignment there, so that each of the three crews got 20 days a month, in this column you would show the three engineers assigned to that run?

Mr. Keefe: Yes, sir, whatever was the number.

Mr. Sheean: Number of men regularly assigned?

Mr. Keefe: Yes.

Mr. Sheean: The effort being as to column 4 to obtain the actual operations on the various railroads and not to obtain merely the number of men who, if they did run 31 days, would be required?

Mr. Keefe: No, the number of men that it took to man the service.

Mr. Sheean: Under actual operating conditions as they existed?

Mr. Keefe: Yes.

Mr. Sheean: And, if in the particular instance that I speak of, one passenger train a day each day, that service was manned on that railroad by three crews, you would show in column 4 three men regularly assigned to man that service?

Mr. Keefe: Yes.

Mr. Sheean: The average hours on duty were obtained in what way?

Mr. Keefe: That is the total number of hours that it takes to fill the assignment. That is the number of hours that were consumed in the assignment, on an average, the average of the total assignments, the total number of hours.

Mr. Sheean: And the average pay per man?

Mr. Keefe: Is the average earnings that each man would have received, had he remained on his assignment the entire month.

Mr. Sheean: Now, in column 7—well, columns 7 and 8 are under the heading of "Highest wages paid one man," seven being the amount paid and column 8 being the name of the man?

Mr. Keefe: Yes.

Mr. Sheean: In the month of October, 1913?

Mr. Keefe: Yes.

Mr. Sheean: The next heading "Lowest wages paid one man who worked additional time during the month," the amount paid and the name.

Mr. Keefe: Yes.

Mr. Sheean: That being for the first road, Atchison, Topeka & Santa Fe, the name of the man on that particular system who, in passenger service, working full time, received the lowest pay?

Mr. Keefe: Yes.

Mr. Sheean: Columns 11 and 12 are derived from what, Mr. Keefe?

Mr. Keefe: From the reports of the Railway Companies, indicating first, in No. 11, the number of men who worked the full time, during the month of October, 1913.

Mr. Sheean: That is, of 121 men, as regularly assigned in column 4, 54 of them on that particular road worked the full time.

Mr. Keefe: The full assignment, yes.

Mr. Sheean: The full assignment.

Mr. Keefe: Yes.

Mr. Sheean: And in the situation that I speak of here, in case of a road running one train a day in each direction, had that service manned by three crews, there would be carried out to 54—carried out among these 54 men, each of the three crews, if they remained the full twenty days.

Mr. Keefe: If they remained the full twenty days; if they did not miss a single trip. If they missed any time, they would not be shown.

Mr. Sheean: But this column 11 is not carried out as being on duty thirty-one days, but those who were on duty the number of days required by their assignment, whether there was twenty days, or nineteen days, or twenty-seven days.

Mr. Keefe: Whatever their assignment called for. This shows the number that worked the full assignment.

Mr. Sheean: Then the last column, 12, taking this first case, Atchison, Topeka & Santa Fe, Eastern Lines, shows that of the extra men who took a few runs, there was 84,000 miles made out of a total shown in column 1 of 547,272 miles.

Mr. Keefe: Yes, sir.

Mr. Sheean: The last column, 12, in each case, being placed here in order to ascertain to what extent these regularly assigned men had their mileage run by extra men, or by someone other than the regularly assigned men.

Mr. Keefe: Yes, or to what extent the regular men were supplanted by other than the assigned men. To what extent the regular assigned men remained on their assignment.

Mr. Sheean: That is, taking column 4 and column 11 together, it shows that of 121 regularly assigned men, only 54 worked the entire assignment.

Mr. Keefe: Yes, sir.

Mr. Sheean: Nevertheless, it is shown that of the lay-offs, the remaining number of the miles made by those who were not regularly assigned to the service, was only 84,000 out of 547,000 miles in the month?

Mr. Keefe: Yes.

Mr. Sheean: Now, from what source did you obtain the statement in column 7 of the highest amount paid in this service?

Mr. Keefe: That is the information that the railroads reported, as to the amount paid and the name of the party who received the greatest wage in October, in each of these particular assignments.

Mr. Sheean: Now, the highest amount paid may be more than the full assignment for that month, may it not be, Mr. Keefe? If one man laying off has some one else on the assignment to take his place, or may not some of these men earn, during that month, more than the amount regularly in the assignment of a particular individual?

Mr. Keefe: Yes; these show only the amounts that they earned in the assignments.

Mr. Sheean: The amounts that they earned in the assignment?

Mr. Keefe: Yes, sir.

Mr. Sheean: That is, column 7 shows the amount earned in the assignment?

Mr. Keefe: Yes.

Mr. Sheean: And if, in addition to their regular assignment, there were any short trips out of terminals, or any other extra work for which they got extra pay, it would not be carried over on this part of the exhibit?

Mr. Keefe: No.

Mr. Park: I notice that in one assignment of an average of $252, the engineer gets $331.

Mr. Keefe: On the Canadian Northern Railroad?

Mr. Park: Yes.

Mr. Keefe: Yes; that is the average pay for all the engineers in all the assignments in passenger service on that road. There was one engineer, in October, who earned on his assignment $331 on that road—Mr. G. S. Chase.

Mr. Sheean: That is column 6, shows the average pay per man on that road, on the entire system?

Mr. Keefe: For all assignments.

Mr. Sheean: For all assigned passenger engineers?

Mr. Keefe: Yes.

Mr. Sheean: And if all the Canadian Northern passenger

engineers worked the time covered by their assignments, their average pay would be $252.07?

Mr. Keefe: Yes.

Mr. Sheean: The highest man in that service, in the month of October, was paid $331.10.

Mr. Keefe: Yes.

Mr. Sheean: The lowest man in passenger service, on the Canadian Northern was D. Dean, who earned $18.50.

Mr. Keefe: He worked the full month, yes. He worked a full month as a passenger engineer.

Mr. Park: Mr. Keefe, the general average is $197. I see that the number of engineers who drew over $250, was about 49 or 50. There is no explanation as to why so many of those individuals are so far above the average, except that some roads get more mileage out of their crews.

Mr. Keefe: Well, the information shown in column 6 is the average for all runs—all assignments put together. That is for their complete assignment.

Mr. Park: One hundred and ninety seven dollars and seventy-nine cents?

Mr. Keefe: One hundred and ninety-seven dollars and seventy-nine cents for all the railroads. The highest wages shown is for the man that made the greatest wages in October, and he may have been, and undoubtedly was on one of the assignments that gave the greatest earnings, greater than the average.

Mr. Park: That may run $50 over the average.

Mr. Keefe: It fluctuates considerably, yes, sir.

Mr. Sheean: In column 7, the amount is in every case the amount of the assignment, no matter what may have been earned otherwise.

Mr. Keefe: Those were the instructions, yes sir. That is what we undertook to receive.

Mr. Sheean: Mr. Keefe, I notice on the M., K. & T. the name of J. Redmon, as earning $304.60 on his assignment, in this month. Now, that is the same name in which you reported on the M., K. & T. here as receiving $340 during that month.

Mr. Keefe: Three hundred and forty-one dollars and sixty cents is the actual wages he received in October. This report showed that his actual assignment—that is what he drew

out of his actual assignment was $304.60, and in ascertaining the details of the $341.60, as requested Friday, I have advice from the M., K. & T. general manager, stating that his total payments for October—what he received actually, in the month of October, and carried on the pay roll for that month, was $341.60. He is on an assignment that makes four trips per day, or a total of 200 miles. That is, overtime after ten hours approximates two hours daily. Also paid one hour per day for switching train at Mineola, and the time that is shown is the actual time on duty, thirteen hours and two minutes, and paid continuously.

Mr. Park: Do they show there what he earned the previous month?

Mr. Keefe: No; he shows that the difference between the $304.60, which is shown as his earnings on that assignment, and his $341.60, shown on the payroll for October, represents the time omitted from previous month's earnings.

Mr. Sheean: Well, can you tell us, or have you the information as to what Mr. Redmon got through the year, or is that shown?

Mr. Keefe: Yes, Mr. Redmon received a total compensation, for the year 1913, of $3,091.05.

Mr. Sheean: That is on a run which has a total spread in hours—I think—I think it was shown on the payroll there of 13.2 hours.

Mr. Keefe: Yes, his time is computed continuously, from the time he starts in the morning, until he completes his final trip at night.

Mr. Sheean: Does this show what the distance of that run is?

Mr. Keefe: Slightly over 50—50.1 as I recall the figures for each leg of the turn. He is paid 200 miles, for the actual miles.

Mr. Park: What would that average, per month, for Mr. Redmon?

Mr. Sheean: $304.60. Oh, that he actually received? Pardon me.

Mr. Keefe: He actually received, per month, counting every month, $257.60. That is he worked—for the entire year

his total earnings were $3,091.05, which is equivalent to twelve equal payments of $257.60.

Mr. Park: You do not know how much he laid off?

Mr. Keefe: The road advises that he laid off a total of 63 days in that year.

Mr. Park: 63?

Mr. Keefe: Yes.

Mr. Burgess: When he works, Mr. Keefe, did I understand you correctly that he gives 200 miles per day and three hours' overtime?

Mr. Keefe: Yes.

Mr. Burgess: That would make ninety hours' overtime in the month?

Mr. Keefe: 93, in October.

Mr. Burgess: That is what builds up that high rate?

Mr. Keefe: Yes. Take 200 miles, his $4.40 rate per day is $8.80 per day. He has three hours' compensation at 44 cents per hour, $1.32. That is $10.12 a day he gets, and for his 31 days, $303.72, in round figures.

Mr. Burgess: Working ninety hours' overtime would be equivalent to nine 10-hour days, would it not, extra? He makes nine extra days?

Mr. Keefe: Basing on ten hours to a day. On the basis of ten hours to a day, yes.

Mr. Sheean: Now, Mr. Keefe, on this Sheet No. 1, have you any general information as to the position on the seniority list of some of these men making these earnings?

Mr. Keefe: Yes, on some of them.

Mr. Sheean: On some of them?

Mr. Keefe: Yes.

Mr. Sheean: Well, now, Mr. Chase, the high man there, $331.10. Where is he on the seniority list, or have you any information?

Mr. Keefe: As I recall, he is 71 on the list.

Mr. Sheean: 71 on the seniority list of that road?

Mr. Keefe: Yes, sir.

Mr. Sheean: That is, on that railroad there would be seventy men ahead of him in the choice of runs, providing they had exercised their choice when the opportunity was open to them?

Mr. Keefe: Yes, sir.

Mr. Sheean: Now, is there anything to which you wish to call attention specifically, before going to the total showing on all the railroads here—the earnings in assigned passenger service?

Mr. Keefe: No. The explanatory note at the bottom shows the basis upon which each one of the columns was based and ascertained, and gives in detail the general explanation which I have given.

Mr. Sheean: And of this total engine mileage in this month, of nearly 23,000,000 miles, all except 2,400,000 was made by the men regularly assigned to that service?

Mr. Keefe: Yes, sir.

Mr. Sheean: And of the 5,412 men regularly assigned to the passenger service, 2,875 of them worked the full time?

Mr. Keefe: Yes.

Mr. Sheean: On all of the railroads, in all of their passenger service, that is the average pay per engineer in passenger service?

Mr. Keefe: If each man had remained on his assignment throughout the month his earnings would have been $197.79.

Mr. Sheean: The pay of the lowest passenger run to a man who worked the entire month is shown for every one of the railroads; in columns 9 and 10?

Mr. Keefe: Yes.

Mr. Sheean: Is there anything to which you wish to direct attention, Mr. Keefe, particularly, on this Sheet 1?

Mr. Keefe: No.

Mr. Sheean: Sheet No. 2, then, gives the same information as to engineers in assigned local or way freight service?

Mr. Keefe: Yes.

Mr. Sheean: Taking, again, the first railroad shown there, the Atchison, Topeka & Santa Fe, the mileage and hours on duty, total wages, number of men regularly assigned, columns 1, 2, 3, and 4 are here made up in just the same way as in the preceding sheets of the exhibit for passenger service?

Mr. Keefe: Yes.

Mr. Sheean: And the average pay per man is obtained by all of the local or way freight service of that line?

Mr. Keefe: Yes.

Mr. Sheean: The highest amount in column 7 is the amount actually paid in the month of October, and in column 8 the name of the man who received it?

Mr. Keefe: Yes.

Mr. Sheean: And in column 9 the lowest amount paid to a man who stayed on the job during the month, and in column 10 his name?

Mr. Keefe: Yes.

Mr. Sheean: In local or way freight service, on all of the roads involved in the movement, the average pay for the assigned service to men who remained on that service during the entire month is $195.39?

Mr. Keefe: During the entire assignment.

Mr. Sheean: During the entire assignment?

Mr. Keefe: Yes.

Mr. Sheean: That may be an assignment of 16, 18, 27, 30 or 31 days?

Mr. Keefe: Yes.

Mr. Sheean: Or any other number of days?

Mr. Keefe: Yes; usually 26 or 27 days in this particular class of service.

Mr. Sheean: But the assignment in each case, or the number of men regularly assigned, being the number of men who, under the operating conditions which obtained in the month of October, 1913, actually manned that service?

Mr. Keefe: Yes.

Mr. Sheean: Is there anything especially about this Sheet No. 2, Mr. Keefe, to which you wish to direct attention?

Mr. Keefe: No; the information shown in column 6 indicates the extent to which an opportunity is afforded the men to earn compensation. That applies to all of the exhibits.

Mr. Sheean: And the information in column 7 as to what extent the most diligent of the men in that month did avail themselves of that opportunity?

Mr. Keefe: Yes.

Mr. Sheean: Will you explain just what is covered by Sheet 3 under the head of "Mixed Train Service?" What is included in mixed trains?

Mr. Keefe: Under mixed trains is shown the information

for the assignments of that particular class of service, as designated by each one of the individual railroads.

Mr. Sheean: That is, by "mixed service" you mean a train that is freight and passenger and baggage and express and through and local and everything else?

Mr. Keefe: It generally handles both passenger and freight traffic together, at least on some portion of its time during the day's assignment.

Mr. Sheean: And this shows for each railroad which has the mixed service, main line or branch, all of the facts, the same as the preceding sheets?

Mr. Keefe: Yes.

Mr. Sheean: The average pay per man, had the number of men regularly assigned worked during the time covered by this assignment in this class of service, is what?

Mr. Keefe: $183.70.

Mr. Sheean: And the highest amount paid in column 7—Well, that is shown as to each particular road?

Mr. Keefe: Yes; and for each particular class of service separately.

Mr. Sheean: Column 7, Mr. Keefe, showing the highest wages paid in many cases, practically all cases, shows a larger amount drawn by particular individuals than this average wage which is shown in the other column?

Mr. Keefe: Yes.

Mr. Sheean: And under this column 7, showing—Oh, there is $291.50 drawn, by Frank Etter on the Great Northern. That does not necessarily mean that Mr. Etter worked full time?

Mr. Keefe: No, that is just simply earnings of the man who made the greatest wages in that class of service in October. He may not have worked the entire month, at that.

Mr. Sheean: Column 6, as to the average pay per man, is simply the average in case all of the men in fact averaged the wages?

Mr. Keefe: Yes.

Mr. Sheean: All of the regularly assigned men did the work to which they were assigned, and averaged among all of them?

Mr. Keefe: Yes.

Mr. Sheean: Column 6, then, is not a limitation, or does

not show the extreme limit of what the men could earn, the individual could earn, or the opportunity afforded, but column 7 shows what the opportunity is for individual men?

Mr. Keefe: Yes, column 6 is what the low man and the high man and every man would have earned if each had pooled their earnings and had distributed them equally between the men who were in the assignment.

Mr. Nagel: The actual earnings.

Mr. Keefe: Yes, under column No. 3, the total wages is the actual earnings paid in the assignment. For instance, have you got Sheet 3 there? Any sheet you have. Sheet No. 2. The wages that were paid out in the local or way freight service on the Atchison, Topeka & Santa Fe lines were $8,275. There were 46 men in the assignment. That is, it took 46 men to complete their full assignment. If each one of those men had remained on the assignment the entire month, each would have drawn $179.89. It does not mean that they would have received that amount of money, because some particular lines in the assignment pay greater wages than the others do, and that is exemplified by Mr. Higby, drawing $191.74, who was in that assignment, but his particular assignment had a greater earning capacity, if you please, than the average.

Mr. Nagel: In other words, that shows the average pay that would have been received if each man had filled his assignment?

Mr. Keefe: Yes.

Mr. Nagel: That accounts for it, that in some cases the man who received the highest pay did not come up to the average that he might have earned?

Mr. Keefe: That was probably because he did not work the full month. Some of the 46 assignments did pay and do pay greater wages than $179, and some less.

Mr. Sheean: The one shown here, Mr. C. H. Tennyson, who worked all the time an opportunity was given him on his assignment during the month, earned only $143?

Mr. Keefe: That is correct.

Mr. Sheean: Mr. Tennyson was available for duty the entire month?

Mr. Keefe: As shown in column 10.

Mr. Sheean: That is the lowest man, columns 9 and 10,

the top line. Now, whether or not that meant in this local service 20 runs or 27 runs or 31 runs, whatever it was, Mr. Tennyson was available for duty the entire month, and yet all the opportunity that that local run afforded was $143?

Mr. Keefe: That is correct.

Mr. Sheean: Mr. Higby received $191.74. No information as to whether that was full time or not full time that he worked?

Mr. Keefe: No, sir.

Mr. Sheean: But your average in every case was arrived at by taking the money that was actually paid in that month to the engineers in local or way freight service, as shown in column 3?

Mr. Keefe: Yes.

Mr. Sheean: The number of men who were assigned to service, as shown in column 4?

Mr. Keefe: Yes.

Mr. Sheean: Dividing the money actually paid by the number of men who were assigned to that service?

Mr. Keefe: Gives us the $179.

Mr. Sheean: Gives the average?

Mr. Keefe: Yes.

Mr. Sheean: And the matter of men assigned to the service, required to man the service, is usually a matter of negotiation between the organizations and the managements?

Mr. Keefe: Yes, it is an arrangement.

Mr. Sheean: A neutral arrangement between them?

Mr. Keefe: Yes, sir.

Mr. Sheean: As to what service shall be protected by, and who, or in what manner it shall be handled is a matter of arrangement?

Mr. Keefe: They are all subject to local conditions.

Mr. Sheean: Now, just what is Mr. Tennyson's service, working full month?

Mr. Keefe: Why, I haven't the details. I did not attempt to inquire into the details of any one of those particular individuals. I assume that he is on some small branch line where the opportunity to earn is not very great. It does not come up to the average, but I have made no investigation.

Mr. Sheean: No special inquiry as to that?

Mr. Keefe: No, sir.

Mr. Byram: I think the case of the Gulf & Interstate Railway would furnish us with a good illustration. There the man who received the highest wages receives less than the average pay.

Mr. Keefe: Yes, that is true, and he probably only worked a short number of days. In that particular case, Mr. Garrett worked only 18 days in way freight service and drew $87.69. But he was also employed one day in through freight, and three days in work train service, for which he drew $21.88 additional; so his total earnings for that month were $109.51, but what he could have earned in that assignment was $112.02 if he had stayed on the assignment the entire month.

Mr. Sheean: Do you know the Argentine-St. Joe run. Mr. Tennyson appears to have been on that, according to this exhibit here.

Mr. Keefe: I don't know any of the details.

Mr. Sheean: You are not familiar with the details of that run?

Mr. Keefe: No.

Mr. Sheean: But his name appears on Exhibit 27 as running between Argentine and St. Joe?

Mr. Keefe: The payroll shows he worked 27 days, which is the full assignment, and made 2,349 miles, an average of 9.6 hours per day, for which he received $143.

Mr. Sheean: Well, from the mileage there, and the fact that he is reported as working full time by the company, that is evidently a local that does not run on Sundays?

Mr. Keefe: That is true.

Mr. Sheean: And the run is short?

Mr. Keefe: He makes less than 100 miles a day.

Mr. Sheean: Less than 100 miles, and is on duty less than 10 hours?

Mr. Keefe: Yes.

Mr. Sheean: Now, on Sheet No. 3, Mr. Keefe, is there anything specially about this mixed train service?

Mr. Keefe: No.

Mr. Sheean: We have already given, I think, the showing on the territory as a whole?

Mr. Keefe: Yes.

Mr. Sheean: Sheet No. 4, engineers in assigned helper and pusher service. That shows, as to all of the roads where the service is assigned service, all of the roads who have helper and pusher service, and who have assigned helper and pusher service?

Mr. Keefe: Yes.

Mr. Sheean: Now, of the roads thus reporting, the total number of men regularly assigned to this class of service is how many?

Mr. Keefe: 596.

Mr. Sheean: Of whom 330 worked 26 days or over during the month?

Mr. Keefe: Yes.

Mr. Sheean: I notice the heading on that is "Total number of men who worked 26 days or over during month." Why was that heading made there?

Mr. Keefe: Why, we did not show the mileage in pusher or helper service, because it was more on an hourly basis than it is on the mileage basis, as a general proposition, and in order to ascertain the number of men who worked the full month or a reasonably full month, we had to use some specified number of days. 26 days or over was considered as having worked a full month, both in assigned helper and pusher service and in the yard service.

Mr. Sheean: The average pay per month for all of these roads in pusher service was how much?

Mr. Keefe: If they had remained at their full assignment, $207.78.

Mr. Sheean: And in columns 6 and 7 are shown the highest wages paid one man during that month?

Mr. Keefe: Yes.

Mr. Sheean: That seems to be Mr. Alex D. Pauline, to whom we referred this morning, $329.65.

Mr. Keefe: Yes.

Mr. Sheean: And in columns 8, 9 and 10 are shown the lowest wages paid to men in helper service who remained at work 26 days or over during the month?

Mr. Keefe: Yes.

Mr. Sheean: Was there anything special as to Sheet No. 4, to which you wished to direct attention?

Mr. Keefe: No.

Mr. Byram: Mr. Keefe, before you leave that sheet, I notice the average pay in assigned pusher and helper service shown on Sheet No. 4 is $207.78.

Mr. Keefe: If they had remained at their assignment, yes.

Mr. Byram: And on the same basis of mixed train service the average was $183.70; in the assigned local or way freight service, $195.39; and in the passenger service, $197.79, indicating that the assigned helper and pusher service averaged higher, perhaps, for the assignment, than any of the other classes of service. Did you learn from your investigation or have you any knowledge that would enable you to give a reason why the pusher service averages so much higher a rate of pay than these fast passenger trains and through freight trains in freight service?

Mr. Keefe: I have not given it any thought, Mr. Byram. I would suppose, however, that the assigned helper and pusher service was more particularly used in that territory where they allow additional compensation for mountain differentials, and that their earnings under that basis are greater than what they are, taking the passenger, way freight and mixed train service in the mountains and the valley, as a whole. That would be my explanation.

Mr. Byram: Now, these men work by the hour apparently. At least, your exhibit seems to show them on an hourly basis?

Mr. Keefe: Not all of them work by the hour, as we pointed out this morning in connection with the Great Northern. The number of miles varies. The actual number of miles is very much different from what they are compensated for in miles, such as that Great Northern man this morning was.

Mr. Byram: Paid by the mile, but their services are hourly services, is that it?

Mr. Sheean: As shown on here, we have not shown the miles at all; just simply shown the hours as a better index rather than to show the actual miles, because the aggregate actual mileage made in helper and pusher service is not great, taken as a whole.

Mr. Sheean: But these monthly rates here on this assignment seem to be higher than on any of the other assignments.

Mr. Keefe: Well, of course, they are not. The assigned

pusher and helper service is not applicable to all over the territory. There are not nearly as many assignments of that class of service. There are only 596 engineers for the entire territory, as compared with 5,400 engineers in passenger service, and where they do operate, generally speaking, they have a mountain differential also, as I recall it.

Mr. Sheean: Well, now, do you understand that any of the requests before this Board for increases or other rules to increase compensation would apply to the compensation of these helper and pusher men?

Mr. Keefe: I understand their requests ask for increase in compensation for men in this class of service as well as other classes of service.

Mr. Sheean: Then, if these requests were granted, the effect would be to raise these rates, which are now higher than any other kind of service, still higher, is that it?

Mr. Keefe: Yes, sir; the effect would be to raise this compensation of men who now receive or have the opportunity to now receive it.

Mr. Byram: And these assignments that now pay $207.78 a month, if these requests are granted, do you think they would be increased in the same percentage that generally prevails in the other individual cases that we have discussed here?

Mr. Keefe: They would be increased some considerable amount. I do not believe that they would have the same percentage of increase that the others have, because the automatic release and tie-up provisions do not apply to assigned helper, pusher service, and so forth.

Mr. Byram: They have been excepted since we came into this hearing?

Mr. Keefe: They have been excepted from the provisions of that rule.

Mr. Byram: Has the time and a half for overtime been withdrawn as to these men?

Mr. Keefe: No.

Mr. Byram: That would still apply?

Mr. Keefe: Yes; wherever they were paid compensation in hours.

Mr. Byram: How would that affect the man that we were

talking about this morning on the Great Northern, who worked 308 hours and was paid 5,000 miles for the month?

Mr. Keefe: If any part of his payment, during October, was based upon hourly compensation he woud receive time and a half for such hourly compensation. I am not aware that he did receive any compensation in hours, in October, 1913.

Mr. Byram: That is all.

Mr. Sheean: In the helper service of the Santa Fe, there is a larger predominance of heavy engines than treating the territory as a whole? The proportion of large engines in the helper service, limited to its own class of helpers, is larger there than the percentage of large engines treating the territory as a whole.

Mr. Keefe: It is my general observation and understanding that the helper service have the heavy class of power.

Mr. Sheean: And the fact that railroad companies, going back as far as 1910, have paid a higher rate upon these heavier engines, shows that, as large and heavier power is installed in helper service, the higher rates of pay obtain in that territory, or obtain on those engines.

Mr. Keefe: Yes; obtain in that class of service.

Mr. Sheean: And that may in part account for the fact that when you consider the helper class alone, the fact that the larger engines are used there shows a higher rate of compensation?

Mr. Keefe: That may be one of the causes.

Mr. Byram: Then, if I understand it, the increased rate of pay on the larger engines would tend to benefit the men in these assignments, too?

Mr. Keefe: Oh, yes, as well as the preparatory time, and the initial and final terminal delay as defined by their proposal.

Mr. Sheean: On sheet No. 5, you have the engineers in assigned yard service. Practically all of the service in yards is assigned service, is it not?

Mr. Keefe: The greater portion of it is.

Mr. Sheean: A greater proportion of it?

Mr. Keefe: Yes.

Mr. Sheean: Are there any of the roads here—I do not recall—which show any monthly payment for yard service, at any of the points?

Mr. Keefe: I do not quite catch your question.

Mr. Sheean: Whether engineers in yard service are paid a monthly rate anywhere.

Mr. Keefe: I do not recall any condition of that sort.

Mr. Sheean: Taking the number of men assigned to the yard, again taking the Santa Fe, Eastern Lines, the total wages shown in column 2 is what was paid in the month of October for assigned yard service, and column 3 shows the number of men required to man that assignment during the month.

Mr. Keefe: Yes.

Mr. Sheean: And divided among the 128 men the average pay per man on the road was $136.26.

Mr. Keefe: Yes.

Mr. Sheean: The highest amount paid was $168.55, without knowing whether he worked a full month, or did not work a full month; and the lowest amount paid to a man who worked a full month was $108.48.

Mr. Keefe: Yes.

Mr. Sheean: Now, in yard service, the average pay per man in this territory, as a whole, taking the actual payroll in yard service, and the actual number of men assigned to that service, was how much per man?

Mr. Keefe: $143.86, if they had remained throughout at their assignment.

Mr. Sheean: Anything particularly as to this sheet, Mr. Keefe, to which you wish to direct attention?

Mr. Keefe: No.

Mr. Nagel: Do you think the percentage of engineers who worked twenty-six days during the month is larger among those assigned to yard service than it is in those assigned to passenger service?

Mr. Keefe: Of the 5,316 men that were assigned in yard service, there were 3,017 of them that worked 26 days or over, in October. That is approximately 60 per cent of the men in yard service that worked there. In the passenger service there were 5,412 men, regular assigned. There were 2,875 of them who worked the full assignment, which is not quite 60 per cent.

Mr. Nagel: And the compensation for engineers assigned to yard service is relatively lower than the average compensation?

Mr. Keefe: Yes; the average compensation in yard service is lower than it is in any other class of service. That is the commencement, generally speaking, of an engineer's profession.

Mr. Sheean: Well, Mr. Keefe, in that same connection, out of the total hours on duty put in in the yards—1,790,000 hours on duty in all the yards during that month, the regularly assigned men performed all the work, except 345,765 of those hours.

Mr. Keefe: Yes, sir.

Mr. Sheean: Anything more in that connection, Mr. Keefe, that you wished to say as to yard service?

Mr. Keefe: No.

Mr. Sheean: Now, in the through or irregular freight service, how do you arrive at the total wages in column 3? Is that all the through or regular freight service, main line and branch?

Mr. Keefe: Yes, that is the compensation received by all men in that class of service.

Mr. Sheean: And the payroll figures here are taken from the same roads and in the same manner as the distribution to different classes of service, as has been heretofore made.

Mr. Keefe: Yes.

Mr. Sheean: You have not attempted in this, as to through or irregular freight service, Mr. Keefe, to make any average because of number of men employed. Tell us why.

Mr. Keefe: Why, because of the fluctuation in the number of men in this particular class of service. It fluctuates, week in and week out, and some cases day in and day out, and it was difficult to secure a basis that would be reasonably representative of the number of men that were in that class of service, throughout the month of October.

Mr. Sheean: Well, what do you mean by fluctuating? Just give us some practical illustration that a layman can understand, about the changes in the number of men taking care of the through or irregular freight service?

Mr. Keefe: Why, it might be, on a certain district, today, there are eighteen men that are in the pool and chain gang service. By reason of a spurt in business, some additional business comes and there are additional numbers of crews that are put in that particular class of traffic, to handle that through or irregular freight. They may remain in there a week or ten days, or

longer; may remain the balance of the month in that service, or they may remain in there only a week or ten days, when a depression in business necessitates taking off some of the crews in that particular class of service; that is in the through or irregular freight assignments. So it is almost impossible to obtain any reasonable basis, to ascertain the number of men assigned for a period of thirty days.

Mr. Sheean: What are you going to do with the extra man who is called and catches a run, Mr. Keefe? How are you going to count him?

Mr. Keefe: Well, it would be difficult whether to figure him as one of the assignment or not. He takes the place of a man in the assignment.

Mr. Sheean: Well, in the assignment—supposing a man in the assignment, or in your pool of these 18 men that you speak of, was available, but you wanted to send out an extra and call an extra crew for that.

Mr. Keefe: If none of the 18 men were available for duty and necessity required the movement of the traffic, an extra crew is built up.

Mr. Sheean: And building up that extra crew, where are you going to count them in making any averages as to what is done in through or irregular freight?

Mr. Keefe: That was the difficulty, how to count him, and it would be very hard to make any explanation that would clearly indicate the reliability of any figures that might be arrived at.

Mr. Sheean: Well, the preceding part of this exhibit is made up of service that remains fixed and regular, a certain kind, day to day.

Mr. Keefe: Yes.

Mr. Sheean: Definite as to the time of the leaving of the trains, of which it is made up?

Mr. Keefe: Yes.

Mr. Sheean: Definite as to the number of trains?

Mr. Keefe: As a general proposition, yes.

Mr. Sheean: Now, in the through or irregular freight service, as shown on this Sheet 6, will you tell us just what the showing is?

Mr. Keefe: Well, there are no averages, of course, as to

what every man in the service would have received. We have simply shown the total mileage, total hours on duty, and the total wages. Then we have shown what are the highest wages paid one man in that class of service, and in columns 6 and 7, we have shown the lowest wages paid one man who worked full time during the month, and that "worked full time," was interpreted by the roads, as I understand it, to mean such men as responded to every call that was made upon them.

Mr. Sheean: That is, a man working in this pool and available for duty, so that when his train came to answer to the call and avail himself of that opportunity of remaining the entire month, without laying off at any time, is shown in Column 6?

Mr. Keefe: Yes, sir, six and seven.

Mr. Sheean: The names shown in 7, the amounts received in Column 6?

Mr. Keefe: Yes.

Mr. Sheean: But because of the inability to get any satisfactory statement as to the numbers throughout a period of one month, there is no attempt to average here?

Mr. Keefe: In this particular class of service.

Mr. Sheean: By whatever comparison through the relationship of engine mileage to hours on duty, or to total wages paid, as can be obtained from other classes of service, all those figures are shown here in the same way that they are on the other sheets?

Mr. Keefe: Yes.

Mr. Sheean: Was there anything further in connection with this through or irregular freight service, to which you wish to direct attention?

Mr. Keefe: No.

Mr. Sheean: The highest amounts paid vary considerably on the different railroads.

Mr. Keefe: Yes.

Mr. Sheean: Now, sheet 7 takes up as to the firemen, Mr. Keefe. First, the assigned passenger service. In assigned passenger service, on all of the railroads, what was the average pay per man to firemen in assigned passenger service?

Mr. Keefe: If they had remained on their assignment throughout the month, it would be $125.15.

Mr. Sheean: The highest amounts paid some of them, run above $200, apparently, in that month.

Mr. Keefe: Yes, the highest one was that on our own railroad, Mr. Richardson, $209.89.

Mr. Sheean: $209.89. Is that on the Gulf, Colorado & Santa Fe?

Mr. Keefe: Yes.

Mr. Sheean: An oil burner?

Mr. Keefe: Yes, that is an oil burner, and one of the large engines at the rate of $3.75. It is applicable and still remains.

The Chairman: How many hours did he work?

Mr. Keefe: As I recall the figures, he worked an average of seven hours a day, for 25 days.

Mr. Sheean: Well, Mr. Keefe, you say $3.75 a day. Pardon me.

Mr. Keefe: He worked 198 hours in the month, Mr. Chairman, and averaged 7.9 hours per day for 25 trips.

The Chairman: Paid on the mileage basis?

Mr. Keefe: Paid on the mileage basis; made 5,547 miles.

Mr. Byram: Which one is this, please?

Mr. Sheean: It is on sheet No. 7. Fireman A. Richardson, fireman on the Gulf, Colorado & Santa Fe paid $209.89. How many days were there available for him—31 days that train runs?

Mr. Keefe: No, I think he made—

Mr. Sheean: It is a passenger run?

Mr. Keefe: It is a passenger run. I do not know how many days they are in that particular assignment. He runs between Cleburne and Bellville yard, a distance of about 212 miles.

Mr. Sheean: Well, Mr. Keefe, you pay $3.75 to an oil fireman there?

Mr. Keefe: Yes, that is the rate that is paid to the firemen for an oil burning locomotive, of the class that Mr. Richardson fired in that month.

Mr. Sheean: Why does an oil burner take a rate as high as $3.75, firing?

Mr. Keefe: That was the rate fixed by the Board of Arbitration, in 1910.

Mr. Sheean: Based on what?

Mr. Keefe: Based on the size of the cylinder, engines 24 inches or over.

Mr. Sheean: 24 inches or over. That was the firemen's basis of having pay fixed at that time, was the size of the cylinder, was it?

Mr. Keefe: Yes, sir.

The Chairman: What would that engine weigh, on drivers?

Mr. Keefe: 140,400 pounds on drivers.

Mr. Sheean: What would that take on the weight on drivers basis, for a coal burner? What did you say the weight was, Mr. Keefe?

Mr. Keefe: 140,400 pounds.

Mr. Sheean: Well, 140,000 and less than 170,000 pounds on drivers is in this proposition of $3.25. This rate of $3.75 for the oil burner was fixed on the claim that the size of the cylinder was the true way of measuring productive efficiency, was it not?

Mr. Keefe: I am not conversant with what the Board of Arbitration based their decision on in that rate.

Mr. Sheean: On the graded scale of wages of firemen, that you should measure the graded scale by the size of the cylinders, getting a $3.75 rate on that kind of an oil burning engine, that, I understand, is the rate under this proposition.

Mr. Keefe: Under the saving clause in the Arbitration Agreement, they retain it. They only ask, however, for a coal burning engine of that same character and same class of service, $3.25.

Mr. Burgess: What are we asking for now?

Mr. Keefe: $3.25 is what you are asking now, on a coal burning locomotive of that size.

Mr. Sheean: What were you paying on this engine, before the submission of the question of having pay fixed on cylinder dimensions?

Mr. Keefe: As I recall the figures now it was $2.50.

The Chairman: Did I understand you to say, either yesterday or today, that a man firing an oil burning engine was not required to perform as much manual labor as one firing a coal burning engine?

Mr. Keefe: It is my opinion that there is not nearly as much labor attached to firing an oil burner as there is attached

to firing a coal burner. In fact, there is no manual labor whatever involved in firing an oil burning locomotive.

Mr. Byram: I was not listening to all of this discussion. Did I understand you to say that that oil burning engine now pays $3.75 to its firemen—is that right?

Mr. Keefe: Yes.

Mr. Byram: And, under this request of these men, the rate for a coal burning engine would be $3.75 for that same engine?

Mr. Keefe: For an engine having the same weight on drivers, yes.

Mr. Byram: That involves a decrease in the rate, does it not? Are the men asking for a decrease in the rate of pay?

Mr. Keefe: If the saving clause had not been in the agreement to arbitrate.

Mr. Byram: Oh!

The Chairman: As I understand the witness, he says there is a saving clause which protects the oil burner, but that the rate would not be, as he suggests, $3.75 on the coal burner.

Mr. Byram: Does that saving clause apply to oil burners only?

Mr. Keefe: It applies to —

Mr. Nagel: That was the effect of the standardization.

Mr. Byram: The effect of standardization in this case, then, would be to make a rate on that engine by making the rate that is asked for in this request. Is that right?

Mr. Keefe: Yes, on that road; on roads that have that rate.

The Chairman: Can you tell me the rate that is now paid a fireman on an engine of this weight on drivers where there is a coal burner used?

Mr. Stone: Is it not a fact, Mr. Keefe, that that is simply a freak locomotive there, with extra large cylinders?

Mr. Keefe: No, sir; it is a Pacific type locomotive. We have eight or nine of them.

Mr. Stone: What is the size of the cylinders?

Mr. Keefe: 25 x 28.

Mr. Stone: And 140,000 pounds on drivers?

Mr. Keefe: Yes; a Pacific type locomotive.

We also have eight Pacific type locomotives weighing 125,600 pounds on drivers, with 25x28 cylinders, which take the $3.75 rate, also.

The Chairman: Let me put it differently. Are firemen now firing coal burners receiving the same rate of wages that this fireman received on an oil burner?

Mr. Carter: I beg your pardon, Mr. Chairman. What was the question? Were you asking that question of me, or of Mr. Keefe?

Mr. Keefe: I understand that some of the companies have still retained that $3.75 rate for coal burners, but very few of them. I understand that most of them, since the expiration of the award, are not paying $3.75 for coal burners.

The Chairman: What is the rate now paid to firemen?

Mr. Carter: Are you asking me, Mr. Chairman?

The Chairman: No. I will try Mr. Keefe first, and give you a chance later.

Mr. Keefe: We have no coal burners on our road at all.

The Chairman: I am speaking of the information you have derived from an examination of these other payrolls.

Mr. Stone: In the Award of 1910, was there any distinction made between coal and oil on the $3.75 rate?

Mr. Keefe: No; there was no distinction between coal and oil on the $3.75 rate.

Mr. Stone: Later on, a few of the roads managed to trade the firemen out of it for something else just as good, did they not? That is what makes the difference now.

Mr. Keefe: There are a number of locomotives burning coal with the same size of cylinders that are paying less than $3.75, for coal burning locomotives.

Mr. Stone: But the Award for both was the same, $3.75, was it not?

Mr. Keefe: Yes.

Mr. Sheean: And, wherever, based on the theory that cylinders are the proper measure, that gives a higher rate than tractive power, it is proposed to retain it, and wherever the fact that the engine is named an 0-2 gives a higher rate than tractive power, it is proposed to retain it?

Mr. Keefe: I understand so, under the saving clause.

The Chairman: Now, Mr. Carter, I will hear you.

Mr. Carter: I thought, Mr. Chairman, that you were asking me a question a moment ago; that you were asking me to reply. I was sitting here without answering, as I was not sure whether you were addressing the question to me or to Mr. Keefe, and I did not know whether I was disrespectful or not.

The Chairman: You had a very pleasant expression on your face, and I just happened to glance that way.

Mr. Carter: If you are asking me, I have not the Award here. I think Mr. Shea has it before him there—have you not, Mr. Shea?

Mr. Shea: No.

Mr. Carter: I refer to the Award of 1910. I shall try to repeat it.

There was an increase of 15 cents a day granted on all engines, and subsequently it was explained that that 15 cents a day was granted entirely because of the increased cost of living. Then there was to be another 15 cents, making the equivalent of 30 cents a day, on all coal burning locomotives in freight service. Understand, the 15 cents a day applied to all engines, as explained, on account of the increased cost of living, and then there was an additional 15 cents on coal-burning engines in freight service.

Then there was a special rate made for all locomotives having cylinders 24 inches and over in diameter, or compound locomotives weighing 215,000 pounds or more on drivers. It was that special rate in there that brings this $3.75 rate which you are discussing.

With regard to cylinders: I think at that time, and perhaps at the present time, by the consent of all the railroad lines, the cylinder basis was largely used on many roads. It was not an innovation on the part of the Western firemen. They were simply following the beaten path. It was not, as has been suggested, that we proposed productive efficiency on a cylinder basis. We were simply following the beaten path. The system has long been in effect and approved, apparently, by all railroad managers.

The Chairman: What I desired to obtain was this: Taking this oil burning engine as a concrete example, whether a man firing for a coal burning engine would receive the same wage he is now receiving?

Mr. Carter: If it was an engine with cylinders 25 inches and over, yes.

The Chairman: I was assuming the same weight on drivers as this.

Mr. Carter: If it did not have that cylinder capacity and come within that specific provision, as I stated a while ago, there was only 15 cents increase granted on the oil burning engine and 30 on the coal burning engine, making a differential of 15 cents on other engines, except those with cylinders 24 inches and over in diameter. Is that exactly what you want?

Mr. Burgess: Taking this same engine that pays $3.75 on this railroad, and transforming it into a coal burner, what rate of pay would be received by the fireman?

Mr. Carter: I do not know now, but under the Award he would receive exactly the same rate.

Mr. Keefe: Are there not a number of roads paying $2.85 and $2.80 on that same class of engine—on practically all coal burning roads?

Mr. Carter: I hope so. I cannot recall it just now.

Mr. Shea: If so, it is not in accord with the 1910 Award.

Mr. Carter: Do you mean to say that they are paying $3.85?

Mr. Keefe: No; $2.85.

Mr. Shea: Yes, $2.85.

Mr. Carter: If any road is paying $2.85 it is one of those roads that has refused to abide by an arbitration award.

Mr. Sheean: You mean that after the period of the Award was over, which, by its terms, covered just the period of one year, a number of roads, immediately following the Award, said they would be bound for the term of the Award but no longer?

Mr. Carter: I am glad you brought up that matter because I think it will be edifying to the Board. Wherever the advantage was to the company, they assumed that the Award had expired. Whenever the advantage was to the men they assumed that it had not expired. For instance, on one road where they had no rate for an oil burning engine, when a coal burning engine was turned into an oil burning engine, they said the Award was still in effect and they would pay 15 cents less on that engine because of that Award. On the other hand, if there was an oil burning engine turned into a coal burning engine,

they said the Award was not in effect and they would not, therefore, pay the additional 15 cents. You can figure that out to suit yourselves.

Mr. Nagel: There does not seem to be anything left to figure.

Mr. Park: Did not the General Managers and firemen all get together and try to settle that question between themselves?

Mr. Carter: Yes; we tried to compromise. I am a great admirer of W. C. Nixon, who was here this morning, and who was Chairman of the Committee, and he almost convinced us at that time that we should have abandoned all other bases of charges and accepted weight on drivers. He said that was the only thing, and he convinced us it was the only thing.

Mr. Sheean: You have not told us what your reply was. You read Mr. Nixon's letter on that subject, but you have not read into the record what you told him about your inability to do that without creating chaos.

Mr. Carter: I will tell you what we told him. We told him that we had consulted an attorney—listen to this—we told him that we had consulted an attorney and that that attorney had told us that any man who was individually affected could go into the courts and get an injunction against our Committee making any change from the Award. That is what we told Mr. Nixon.

Mr. Park: That you would have been glad to do it if it had not been for the lawyer?

Mr. Byram: Would you be willing now to accept the weight on drivers basis without any increase in compensation? That is, supposing the rate of pay was adjusted so that there would be no increase or decrease either, would your organization desire to see that rate of pay fixed on the weight on drivers, without any increase in pay?

Mr. Carter: Most assuredly not. That is what we are here for—to get an increase in pay.

Mr. Byram: Then it is not so much a standardization on weight on drivers basis that you want, it is an increase in pay?

Mr. Carter: We want, primarily, to bring the low men up to practically what the high men are now. That is the real purpose of the standardization at this time. Now, in order to do that we have tried to adopt some uniform basis for all railroads and, as

I said to you, we have been convinced by the Managers' Committee that the only proper basis is weight on drivers.

Mr. Byram: You could probably—or could you, do you think—obtain from the Managers an adjustment of the rates of pay on the weight on drivers basis without any increased compensation?

Mr. Carter: I imagine they would be glad to have that change.

Mr. Byram: Then you would not have much difficulty in getting what you primarily ask for here—a standardization of the basis?

Mr. Carter: I think you are quite right. I think the railroads would like to have it on the weight on drivers basis; but they do not want to bring the low men up to the high men. They would like to bring the high men down to the low men.

Mr. Byram: You said a while ago, I believe, that this Award under which the firemen's rates of pay are now operating, was an award of an Arbitration Board?

Mr. Carter: Yes, sir.

Mr. Byram: And that 15 cents of that increased rate of compensation awarded by that Board was, in the opinion of the Board, necessary on account of the increased cost of living?

Mr. Carter: Yes, sir. It was so stated in the correspondence.

Mr. Byram: And there was another 15 cents allowed?

Mr. Carter: Yes.

Mr. Byram: Making a total of 30 cents?

Mr. Carter: Yes, sir.

Mr. Byram: What was the other 15 cents allowed for? Did the Board give any reason for it?

Mr. Carter: No reason.

Mr. Byram: What do you think it was for?

Mr. Carter: I think that they gave it on account of the coal burning engines. They said so, in fact.

Mr. Byram: The engines to which it applied were all burning coal, were they not, or many of them—the engines to which that 15 cents applied?

Mr. Carter: Understand, the 15 cents applied to all engines, coal and oil.

Mr. Byram: That is the 15 cents that was granted on account of the increased cost of living?

Mr. Carter: Yes, but the additional 15 cents applied only to coal burning engines in freight service.

Mr. Byram: But they were all burning coal?

Mr. Carter: Yes.

Mr. Byram: So that the 15 cents was allowed for some reason beside the fact that they were burning coal, was it not?

Mr. Carter: Presumably so.

Mr. Byram: What do you think was the reason it was granted, then?

Mr. Carter: I have not consulted with anyone except our member of the Arbitration Board, and I hope I shall not be betraying confidences when I say that it was because of trying to bring so many oil-burning witnesses here. Is that right?

Mr. Byram: I understood you to say that the 15 cents applied to coal burning engines. I do not quite catch your connection between the oil burning witnesses and the coal burning engines.

Mr. Carter: Well, it seems to me that perhaps on account of the discussion that took place they only granted 15 cents to the oil burning men.

Mr. Byram: I am talking now about the other 15 cents that was given to the coal burning engines; I am trying to get your idea.

Mr. Carter: I am done.

Mr. Byram: I am trying to get your idea as to the reason the Board granted 30 cents to the coal burning engines, leaving out the oil burning engines entirely—the 30 cents advance; 15 cents, I understand, was applied on account of the increased cost of living.

Mr. Carter: I think so.

Mr. Byram: The other 15 cents on the coal burning engines—what was that given for?

Mr. Carter: I suppose because they were coal burning engines. I don't know.

Mr. Byram: Was it given for service, do you think; be-

cause they had increased the service, or had to perform more work, or what?

Mr. Carter: Well, I have not thought of it, except that they thought the coal burning men were entitled to it.

Mr. Byram: What did you argue for it?

Mr. Carter: We argued for no differential whatever.

Mr. Byram: You argued for an increase in pay?

Mr. Carter: Yes.

Mr. Byram: What amount did you ask for, as an increase in pay?

Mr. Carter: We had not, at that time, thought of our productive efficiency movement. We asked on account of increased cost of living particularly, and introduced many witnesses and much evidence to show that since the former increase of 1907, there had been a marked increase in cost of living. We also showed, as we have shown here, the increased tonnage of trains. I think the increased tonnage of trains has progressed in the same degree of progress, but at that time we did not advance the theory of increased productive efficiency, and not a penny of that increase in 1910 was granted on account of the increased productive efficiency, because the word was not mentioned.

Mr. Sheean: But it might have been because of the increased tonnage, which you did dwell on very heavily.

Mr. Carter: The increased tonnage?

Mr. Byram: Then it was intended, as I understand you, that you prove to the satisfaction of this Board that there had been an increased cost of living, for which the firemen were entitled to some increase in pay, which was fixed at 15 cents?

Mr. Carter: Yes.

Mr. Byram: Then you think you convinced the Board that the firemen on coal burning engines were entitled to something more, for the reason that they were hauling more tonnage, or working harder, or something, than they were when rates were fixed in 1907. Is that right?

Mr. Carter: I presume so. But understand, it was a sore disappointment to us when we found there was a differential fixed.

Mr. Byram: I am not talking about the differential. I am talking about $3.25 a day given to the coal-burning engines.

Mr. Carter: I think—really, I haven't any right to think

so, but I am going to think something, that the arbitrators had in mind the fact that, since 1907, the tonnage of trains had been increased. I prefer to consult with Mr. Shea, before I imagine any more.

Mr. Byram: That is a fair assumption, I suppose, but what I am getting at was that in the opinion of the Board, the 15 cents additional allowed on the coal burning engine, was intended to cover the ground you advanced for the increase in pay between the periods of 1907 and 1910.

Mr. Carter: Yes, sir; and I want to call attention, if I may, to counsel for the railroads, that the increase of 15 cents, granted on account of the increased cost of living, applied to the increased cost of living that preceded the award, and not that that succeeded the award, as he indicated in his opening address.

Mr. Sheean: And what was left to take care of the other, on the increased tonnage, or because of increased tonnage as distinguished from increased productive efficiency.

Mr. Carter: Well, really the two mean the same.

Mr. Sheean: Oh, well. I am glad to have that admission of record.

Mr. Carter: Sure.

Mr. Sheean: Well, then in 1910, what was presented was not labelled increased productive efficiency, but was at that time called increased tonnage, but in truth and in fact they mean one and the same thing, but are differently named.

Mr. Carter: I imagine that we could not show increased productive efficiency, unless we had bigger engines and bigger trains.

Mr. Sheean: Well, now, Mr. Carter, I would like to know about this minimum that was fixed there too. There is a minimum fixed for engines weighing a certain amount on drivers, 215,000 pounds, and also a mimimum on cylinders above certain dimensions. In addition to increases that you have spoken of here, in answer to questions of Mr. Byram, there was also fixed the rate of $3.75 which applied wherever the cylinders were more than certain dimensions, or wherever the weight was over 215,000.

Mr. Carter: Now, I think I can explain it. I do not want to speak for the Board. At that time there were very few Mikados in service—I mean very few Mallets in service, and

practically no engines having cylinders over 24 inches in diameter. As I remember it, there were a few of those engines on the Chicago & North Western Railroad. Now, in order to provide for a condition that had never heretofore existed, they did provide special rates of $4.00 on all Mallets and a $3.75 rate on all of these huge engines that were not Mallets.

Mr. Sheean: So that that rate of $3.75 fixed at that time, not to fit engines then in existence, but because of the knowledge that engines were to come in and found this rate of $3.75, waiting for this heavier power that came in.

Mr. Carter: That is what we thought, but the railroads do not think so.

Mr. Sheean: Over 215,000 is paying $3.75, is it not?

Mr. Carter: Under the award, yes, but in practice, no.

Mr. Sheean: Well, that appears in the exhibit here, one of just how many cases there were in which there is any departure from the 215,000 weight on drivers?

Mr. Carter: I think this should be explained, gentlemen of the Board. There was an immediate dispute. I want to explain this $3.75 rate. There was an immediate dispute between the committee representing the firemen and hostlers, and the committee representing the railroads, as to what that $3.75 applied.

Mr. Park: Did the arbitrators know?

Mr. Carter: They did afterwards. Now, when the matter was in dispute, Mr. Nixon very promptly said he would refer anything back to the Board of Arbitration. We held another meeting—I do not know whether in this room or not, but a similar room, in November.

The Chairman: If the arbitrators did not know at the time, how did they find out?

Mr. Carter: We contended the award meant one thing; they contended it meant another thing. Then we referred it back to the Arbitrators, in November, 1910, and they then said what they meant. They never said before, because there was no interpretation of what they meant, but when the matter was presented to the Board, they decided just what the award meant. The way the questions were asked, it would indicate that the railroads complied with the award, as interpreted. Some of them did and some of them did not. That is why, on some engines, the $3.75 rate applies, and on other engines it does not.

You (addressing Mr. Keefe) are excepted, because the A. T. & S. F. did—particularly the G. C. & S. F.

Mr. Park: They have a lot of small engines on the Santa Fe, with big cylinders, do they not—compound?

Mr. Carter: I am like Mr. Keefe. I do not know.

Mr. Keefe: We had the $3.75 rate engines at the time the award was made.

Mr. Carter: You had them? I did not know that. There was a precedent for the Board.

Mr. Keefe: But they were paying $2.50 at that time.

Mr. Carter: I thought you said you had $3.75 engines?

Mr. Keefe: I said we had that class of engine, 25 inch cylinder. That is my recollection, that we had it in service.

Mr. Carter: I would like to read from a schedule, effective January 1, 1914:

"Simple engines having cylinders 24 inches or over in diameter, not on compound engines, weighing 215,000 pounds or more on drivers, firemen shall receive $3.75 per 100 miles or less, in all classes of service, except passenger and yard service."

Now, there is a schedule made on an oil burning road, just a year ago, long subsequent to the award, and it indicates there was no desire there to deviate from the cylinder basis.

Mr. Sheean: Except passenger, you read.

Mr. Carter: Except passenger.

Mr. Sheean: Mr. Keefe was just testifying here he was paying on passenger.

Mr. Carter: I am only reading this schedule, made almost two years subsequent to the award, where they stuck to the cylinder basis with the consent of the railroad.

Mr. Sheean: I understood you to say that was a true interpretation of the award. If so, Mr. Keefe has a lot of money coming back from the passenger firemen.

Mr. Carter: I am sorry I took up so much time to explain what I meant. The award, which expired on May 16, 1911, made no distinction between freight and passenger service. The award expired May 16, 1911. On January 1, 1914, the Southern Pacific Railroad made an agreement with its firemen, providing for the same cylinder engine, of $3.75 on oil burning engines for freight service, which would indicate that the 24 inch cyl-

inder mentioned for oil burning engines, and the $3.75 rate, is not so bad.

The Chairman: We will take an adjournment until 10 o'clock tomorrow morning.

(Whereupon, at 5 o'clock P. M., February 2, 1915, an adjournment was taken until February 3, 1915, at 10 o'clock A. M.)

IN THE MATTER OF THE
ARBITRATION
between the
WESTERN RAILWAYS
and
BROTHERHOOD OF LOCOMOTIVE ENGINEERS
and
BROTHERHOOD OF LOCOMOTIVE FIREMEN AND ENGINEMEN
under the Act approved July 15, 1913, *by agreement dated August* 3, 1914.

Chicago, Illinois, February 3, 1915.

Met pursuant to adjournment at 10:05 A. M.
Present: Arbitrators and parties as before.

Mr. Park: In Volume 40, page 4032, the following correction should be noted, sixth line from the bottom of the page. The sentence should read: "I understand, Mr. Carter, the witness can answer yes or no," instead of, as at present, "Mr. Carter can answer yes or no."

J. H. KEEFE was recalled for further examination and, having been previously sworn, testified as follows:

RE-DIRECT EXAMINATION.

Mr. Sheean: Mr. Keefe, we had gotten to Sheet No. 7 of Exhibit No. 30, showing firemen in assigned passenger service in the month of October, 1913.

Mr. Keefe: Yes, sir.

Mr. Sheean: Out of the 5,353 men regularly assigned as firemen in passenger service, the average pay per man is shown by this exhibit to be $125.15.

Mr. Keefe: Yes, sir.

Mr. Sheean: Is there anything further, Mr. Keefe, as to this page or sheet of the exhibit as to firemen in assigned passenger service to which you wish to direct attention?

Mr. Keefe: No, sir.

Mr. Sheean: Then, Sheet No. 8, showing the firemen in assigned local or way freight service, in the same month, shows how many men assigned regularly to that service?

Mr. Keefe: 2,452 men.

Mr. Sheean: And the average pay per man of those regularly assigned, had they remained on duty, was what?

Mr. Keefe: Had they remained on their assignment it would have been $124.63.

The Chairman: How many men does that represent?

Mr. Keefe: 2,452.

The Chairman: What relation does that bear to the entire number employed by the company at that time, that is, those that you have taken into account?

Mr. Keefe: In this particular class of service, approximately 10 per cent.

The Chairman: 10 per cent?

Mr. Keefe: Yes.

Mr. Sheean: Have you totaled the regularly assigned men? Do you know what proportion the regularly assigned men in all the passenger service bears to the total?

Mr. Keefe: Between 60 and 65 per cent of the total number of engineers and firemen in the service.

Mr. Sheean: And the 10 per cent is simply those assigned to local or way freight service?

Mr. Keefe: Yes, sir.

The Chairman: You mean 60 per cent of the firemen that are on the assigned list?

Mr. Keefe: Yes, sir; approximately.

The Chairman: Does that 60 per cent show anything like the wage as indicated here?

Mr. Keefe: For each class of service, if they had remained on their entire assignments they would have received the figures given.

Of course, for the passenger men it would have been $125; for the local men, $124; for the mixed train service, $117; for the helper service, $135; for the yard service, $86.

The Chairman: What would that rate have been per day? I have not made the calculation.

Mr. Keefe: Per day of 31 days in the month, or per day of the assignment for which they actually worked?

The Chairman: I do not know whether you figure 31 days or not.

Mr. Keefe: If it is per calendar day, that is, for each day in the month, it would be divided by 31. Between four and five dollars per day—a little over four dollars for the passenger service and practically the same for the local service; for the mixed service slightly less.

The Chairman: Well, I understood some one to say yesterday that a majority of the firemen were not receiving over $3.25 per day.

Mr. Keefe: That $3.25 is per day of ten hours or less, 100 miles or less. Now, they make more than that. Their average, as shown by this mileage, is 120 miles instead of 100 miles per day. They make more than the 100 minimum as a general proposition, as an average, and of course they get paid for all of the mileage over 100, where they work more than that.

The Chairman: Does that mean that they work a greater number than ten hours per day in order to make the additional amounts?

Mr. Keefe: Exhibit No. —

The Chairman: I am groping in the dark about this matter, and I want to get it straightened in my mind, if I can.

Mr. Keefe: Based upon the month of October, the Exhibit No. 29, Mr. Chairman, shows, in each class of service, the number of hours that they were compensated for, and it varies in each class of service. For instance, the passenger men make an average of 7 hours a day; the through freight 11.1; 12 hours in the local freight; and 11.4 in yard service.

The Chairman: That is the average.

Mr. Keefe: That is the average, yes, sir.

The Chairman: What is the greatest number of hours service that any of these men perform? Or is it true that this high rate of wages is due to the fact that they have worked a greater number of hours than ten hours a day?

Mr. Keefe: It has something to do with the wages they receive, and does represent some of the reasons for the big earnings per day—the number of hours that they work. And, of course, in working this 11.1 hours, for instance, in the through

or irregular freight service, they average 120 miles a day. Now, averaging that 120 miles a day, of course they get paid on a mileage basis and not on an hourly basis, as an average, and the miles that they make, as well as the hours that they are employed, is what gives them their high earnings per man.

The Chairman: All right.

Mr. Sheean: On your exhibit 29 then, Mr. Keefe, where you reduce it in each of these classes of service to the actual pay per hour, that is arrived at by taking the total hours for which they were compensated under their schedule?

Mr. Keefe: Yes.

Mr. Sheean: And in passenger service, showing sometimes over a dollar per hour, the earnings in passenger service as engineers, if they run into high amounts, would not necessarily be because of overtime, but because of the number of miles they made, in a great majority of cases?

Mr. Keefe: Yes. In passenger service they make an average of 166 miles a day, instead of the basis of a day's pay, 100 miles.

Mr. Sheean: And do that in an average number of hours on duty of seven?

Mr. Keefe: Seven and a half hours for firemen, and practically the same for engineers.

Mr. Sheean: Was there anything as to these firemen in assigned local or way freight service, to which you wished to call attention specially?

Mr. Keefe: No, sir.

Mr. Sheean: Sheet No. 9 shows firemen in assigned, mixed train service in that month?

Mr. Keefe: Yes, sir.

Mr. Sheean: And what were the total number of men assigned to mixed train service in that month?

Mr. Keefe: 643 men.

Mr. Sheean: Firemen, sheet No. 9?

Mr. Keefe: 628 firemen.

Mr. Sheean: And what was the average, per man, of those regularly assigned, had they worked the full assignment?

Mr. Keefe: $117.12.

Mr. Sheean: The variations between the highest earnings and the lowest earnings of the men who worked the full time dur-

ing the month, is shown on this page, the same as in other classes of service?

Mr. Keefe: Yes.

Mr. Sheean: Sheet No. 10 shows the firemen in assigned helper and pusher service; or, was there anything on sheet 9 to which you wished to direct attention?

Mr. Keefe: No.

Mr. Sheean: The total number of firemen in assigned helper service in that month, was how many?

Mr. Keefe: 596.

Mr. Sheean: And the average pay for men, those who worked 26 days or over during the month?

Mr. Keefe: $135.05.

Mr. Sheean: This, also, gives the name of the man on each road who drew the lowest wages, in that class of service, in that month?

Mr. Keefe: Yes.

Mr. Sheean: Sheet 11 shows the firemen assigned to yard service in that month?

Mr. Keefe: Yes.

Mr. Sheean: How many?

Mr. Keefe: 5,319 firemen.

Mr. Sheean: And the average pay per man of those who worked the 26 days or over?

Mr. Keefe: If they had remained on their full assignment, it would have been $86.23.

Mr. Shea: Mr. Keefe, what do you mean by full assignment, full number of days?

Mr. Keefe: Whatever the number of days were in the assignment. For instance, if 27 days was the assignment, or 31 days was the assignment in particular yards, if they had remained on their assignment, whether 27 or 31 days, they would have received $86.23.

Mr. Shea: That is not exactly definite, is it?

The Chairman: Talk a little louder, Mr. Shea.

Mr. Shea: That is not exactly definite. They do not usually assign switching crews 26 days or 27 days. Sometimes they do work the full number of days; then again they may be off one or two Sundays.

Mr. Keefe: They have a regular assignment as to whether

they shall work 27 days, 30 days or 31 days, Mr. Shea. This was for the month of October, 1913.

Mr. Shea: On all roads, does not the volume of business regulate that considerably during the month?

Mr. Keefe: As to the number of engines that are in assigned yard service, yes, sir, but this was for the month of October, where they had the actual assignment and had the actual figures. This is the actual one month and no theoretical or supposed assignment.

Mr. Shea: What was the regular assignment—how many days?

Mr. Keefe: In some roads it was 27 days and some 31. I have not got the number of roads showing the assignment on each particular road.

Mr. Sheean: Even on the same road, in one yard there may be an assignment for 27 days and in another yard for 31 days. Depends on whether they had a Sunday engine or not.

Mr. Keefe: Certainly.

Mr. Shea: In case we wish to find the average rate per day, how would we compute it, the average of $86.23 for the month. Suppose we wanted to find the average wage, per day?

Mr. Keefe: It was for 337 hours, you will notice there, Mr. Shea. Now, that would give your average rate per hour, dividing your 337 into your $86.23.

Mr. Shea: Well, how could we arrive at the average number of days per month? A man may work ten hours, he may work eleven, he may work twelve, he may work fourteen, he may work fifteen, some days. How could we reach the average wage, per day, per man, for these men, showing that they averaged $86.23 for the entire month?

Mr. Keefe: This $86.23 is not the average of what the men actually drew. That is the opportunity given to men in yard service to earn, if they had taken advantage of their opportunity. Exhibit 29 shows what was actually earned, both per hour and per day, for the men in yard service, in October, 1913. As I explained yesterday, this average pay, per man, is the ability or the opportunity that is given to the man to earn, if he had remained in his full assignment in the month of October.

Mr. Shea: Now, assuming that they had worked the full assignment, how are we going to reach the daily average wage?

Mr. Keefe: The average daily wage is also shown in Exhibit 29.

Mr. Sheean: What sheet on 29?

Mr. Keefe: Sheet No. 3—or Sheets Nos. 1, 2 and 3, either one. No. 1 shows it for every man that worked.

Mr. Shea: What sheet?

Mr. Keefe: Sheet No. 1, Exhibit 29, shows for every man that worked in yard service, what his earnings per day and his earnings per hour were, lines Nos. 27, 28 and 29.

Mr. Sheean: What line, Mr. Keefe?

Mr. Keefe: Line 36.

Line No. 36 of sheet No. 3 shows earnings per man for those men that were available for duty, when they earned more than $70.

Mr. Burgess: That is, 25 cents per hour?

Mr. Keefe: 25 cents per hour, yes, for both sheets. That shows the earnings per hour.

Mr. Sheean: And Exhibit 29 carried out on the basis of per day, per hour and per man, is the same payroll figures which, in Exhibit 30, are shown for the purpose of indicating the opportunity that the men had to earn this sum of money?

Mr. Keefe: Yes.

Mr. Shea: Then, in line 36, sheet No. 3, Exhibit 29, is that the daily wage, the average daily wage?

Mr. Keefe: The $2.91?

Mr. Shea: Yes.

Mr. Keefe: Yes, sir.

Mr. Shea: Of all of the firemen in the yard service?

Mr. Keefe: Yes, sir.

Mr. Sheean: Was there anything further as to this sheet 11, Mr. Keefe?

Mr. Keefe: No, sir.

Mr. Sheean: Sheet No. 12, then, shows the firemen in through or irregular freight service in that month?

Mr. Keefe: Yes.

Mr. Sheean: Total engine mileage, total hours on duty and total wages—the same general form that you explained yesterday as to engineers in through or irregular freight service.

Mr. Keefe: Yes.

Mr. Sheean: In column 1, you show the total engine mileage for the month in through or irregular freight service?

Mr. Keefe: Yes.

Mr. Sheean: And in column 8, the total mileage made in through or irregular freight service, by extra men?

Mr. Keefe: Yes.

Mr. Sheean: Indicating that, of the 21,000,000 engine miles in that class of service, in that month, 6,656,000 were made by extra men?

Mr. Keefe: Yes.

Mr. Sheean: Now, in connection with this Exhibit No. 30, Mr. Keefe, have you carried through or obtained from the roads a statement of the total earnings through the fiscal year of the individuals whose names are shown on sheet No. 30 as having earned the highest wages paid one man in the month of October?

Mr. Keefe: Yes, sir.

Mr. Sheean: And you have this as a supplement to this Exhibit 30?

Mr. Keefe: Yes.

Mr. Sheean: 30-A?

Mr. Keefe: Yes.

(The document so offered and identified was received in evidence and thereupon marked "Railroads' Exhibit No. 30-A, February 3, 1915.")

Mr. Sheean: Will you let us have 30-A, please?

Mr. Stone: Is this new exhibit bearing on the same thing?

Mr. Sheean: Yes, a part of the same exhibit, a subdivision of it.

Mr. Keefe, as I understand this supplement, taking, for instance, sheet No. 1 of this exhibit No. 30-A, you have caused to be here set forth the detailed earnings, through the year, of the men whose names are shown on sheet No. 1 of Exhibit 30?

Mr. Keefe: Yes.

Mr. Sheean: As under the column "Highest wages paid one man," or column 8 of Exhibit No. 30, Sheet 1.

Mr. Keefe: Yes.

Mr. Sheean: Now, by turning back to sheet No. 1 of Exhibit 30, in the column headed "Highest wages paid one man,"

the first name that appears there is E. Thomas of the Atchison, Topeka & Santa Fe, Eastern lines.

Mr. Keefe: Yes.

Mr. Sheean: And his name is the first name shown on sheet No. 1 of 30-A?

Mr. Keefe: Yes.

Mr. Sheean: So each of the individuals whose names appear in column 8 of sheet 1 of Exhibit 30, is carried out on this sheet No. 1 for the entire year?

Mr. Keefe: Yes.

Mr. Sheean: This information has been recently obtained from the roads respectively?

Mr. Keefe: Yes, very recently.

Mr. Stone: Pardon me; can I ask for information? Do I understand you to say that the names on Exhibit 30 are the same names that appear here?

Mr. Keefe: Yes.

Mr. Sheean: Yes. Taking Sheet No. 1, Mr. Stone, of Exhibit No. 30, just to get the run of it—have you sheet No. 1 of Exhibit 30?

Mr. Stone: Yes.

Mr. Sheean: You will notice in column No. 8, the name E. Thomas, on the Atchison, Topeka & Santa Fe, is on sheet No. 1 of this Exhibit 30.

Mr. Stone: I don't find it here.

Mr. Sheean: Column 1, "E. Thomas."

Mr. Stone: All right.

Mr. Sheean: Column 1, on this sheet No. 1, E. Thomas, being the same man who is shown as first in column 8 on sheet 1, of Exhibit 30. The second man appearing on sheet No. 1 of Exhibit 30, is Andrew Hanson, of the Atchison, Topeka & Santa Fe, Eastern Lines. So No. 2 here is Andrew Hanson, and as I understand it, Mr. Keefe, this sheet No. 1 is a supplement to sheet No. 1 of Exhibit 30, so as to show the detail as to each of the men appearing in column 8 of Exhibit No. 30, sheet 1?

Mr. Keefe: Yes.

Mr. Sheean: Then each of the sheets of this 30-A, following the same numbers, corresponds or gives the detail of the corresponding sheet of Exhibit 30?

Mr. Keefe: Yes.

Mr. Sheean: So that, in Exhibit No. 30-A, you have the same number of sheets, sheets 1 to 12, that are given in Exhibit 30 proper?

Mr. Keefe: Yes.

Mr. Sheean: And, on each one of the sheets of this supplement, the information for the entire year is given as to all of the individuals whose names appear in column 8 of Exhibit No. 30?

Mr. Keefe: Yes.

Mr. Byram: If I understand this exhibit correctly, Mr. Keefe, this Supplement 30-A shows the earnings, throughout the entire year, of the men who were shown in Exhibit 29 as having earned the highest wages on the different roads during October, 1913.

Mr. Sheean: On Exhibit No. 30, Mr. Byram.

Mr. Keefe: Yes; Exhibit No. 30, instead of Exhibit 29.

Mr. Byram: Exhibit No. 30?

Mr. Keefe: Yes.

Mr. Byram: The thought is that this shows that, although these men received a high rate of pay in October, 1913, it also shows what they earned in other months of that same year—these same men—is that it?

Mr. Keefe: Yes; the same individuals.

Mr. Park: This is 1914.

Mr. Keefe: For the year ending June 30, 1914.

Mr. Sheean: That includes October, 1913? It is for the fiscal year ending June 30, 1914?

Mr. Keefe: Yes.

Mr. Byram: Does this show the man earning the highest rate of pay on each road?

Mr. Keefe: No, no. It simply took the men that earned the high wages in October, 1913, and carried them through the year.

Mr. Byram: On one road or on all roads?

Mr. Keefe: On all the roads.

Mr. Byram: That is what I mean. On all the roads involved?

Mr. Keefe: Yes; but it does not represent the maximum earnings for an engineer on any one road at all.

Mr. Byram: I understand that; but this is to represent

the man who, on each road, earned the highest rate of pay in October, 1913, and is intended to show how much he earned in other months of the same fiscal year?

Mr. Keefe: Yes.

Mr. Sheean: The information, Mr. Keefe, shown on Exhibit No. 30, was obtained some time ago, was it not?

Mr. Keefe: In November and December, yes, sir.

Mr. Sheean: On Exhibit No. 30?

Mr. Keefe: Yes.

Mr. Sheean: As to all of the assigned service, following the form which is shown on Exhibit No. 30?

Mr. Keefe: Yes.

Mr. Sheean: Then, since the arbitration proceedings have been on, in order that we might have knowledge of the earnings through the year of the same men whose names were shown on this Exhibit 30, the request was sent out to furnish it as to these individuals shown on Form 30 throughout the entire year?

Mr. Keefe: Yes; within the last several weeks.

Mr. Park: Does this indicate that the highest earnings possible were earned in the month of October? I notice in the first case, Mr. E. Thomas, that for three months, the month preceding and the month following October, he received the sum of $264; but in March he earned $272 and in June $272.

Mr. Keefe: And also in January.

Mr. Park: Yes. So that during other months in the year, even dull months, he seemed to have earned more than he did in the month of October. Does that follow generally through the exhibit?

Mr. Keefe: The majority of cases show that, yes; that October was not the highest earnings of all the men, but we simply show the total earnings for the year of each one of those individuals that were shown on Form 30, for October.

Mr. Park: I was trying to get from you a reflection of the whole thing, as to whether it was a fact that October had the greatest possibilities, or not?

Mr. Keefe: Not necessarily so, no, sir.

The Chairman: What number of engineers would fall within this class, as respects the wage indicated here? What percentage of the whole?

Mr. Park: 25 engineers.

Mr. Keefe: That received—

The Chairman: Wages according to the scale indicated here.

Mr. Keefe: I have not attempted even to make any calculation or to make any review of that, Mr. Chairman, because in order to do that I would have to know what the entire year's earnings were for every man, and that is just simply twelve times the compilation of this data here that we have for October —too huge a task.

Mr. Park: Did you do it for October?

Mr. Keefe: We did it for October, yes; and our Form 29 shows the data absolutely for the month of October, and shows that practically half of the men received greater wages in passenger service than $185.

Mr. Park: 50 per cent of the men.

Mr. Keefe: Yes. Sheet No. 4 of Exhibit 29, shows the number of men that received wages in October, grouped under certain specified amounts.

Mr. Sheean: Now, Mr. Keefe, on each of the pages of this 30-A, you have at the bottom line on each of the tables time lost, number of days. That is as furnished by the railroads.

Mr. Keefe: Yes.

Mr. Sheean: Take No. 18, Mr. W. R. Graves. Apparently there were three months in which he did not work, January, February and March, 1914, but no notation of time lost. Is the notation of time lost intended only to show months in which he worked part of the time and laid off part of the time?

Mr. Keefe: No; that time lost was the information that was received from the railroads, and there was no uniformity in the returns received. Some of the roads gave the information and some did not. For Mr. Graves, the road did not report the number of days lost whatever by him, and this was all received by telegraph advice, and we did not have the opportunity to get the uniform basis for reporting that particular information as time lost, but whatever the road gave us as the time lost, we have shown it here.

Mr. Sheean: That is during the hearing this was obtained, following some suggestion made at some time that taking a man in one month would not really show what he would do

through the year, and that you ought to get him through the year—that was done by telegraph as to all these men.

Mr. Keefe: Yes; we thought the question would be raised, that, showing the highest wages paid in October, there might be a question as to what that man drew the balance of the year, and this information was assembled to supplement his earnings for October.

Mr. Sheean: No. 5; E. Landon, "O. S." O. S. means "Other service," $38.57.

Mr. Keefe: Yes.

Mr. Sheean: That is, Mr. Landon, during that year, in addition to the sum which he received in his regular assignment, earned $38.57 in some service other than assigned passenger service?

Mr. Keefe: Yes. It is not to be implied, Mr. Sheean, that the wages shown here by these men were all received in assigned passenger service, but is the wage that each one of these men received as a total for the year, in all classes of service.

Mr. Sheean: Under separate notation of "O. S." is intended to indicate service other than the assigned service.

Mr. Keefe: Wherever that is shown, yes, but we have not applied that to all the men.

Mr. Sheean: Now, take column 9, Mr. Louis Reichter. I note that in one month there, February, he is shown as $6.80. This being an assigned passenger service, Mr. Keefe, is there any certain deduction to be made as to his earnings of $6.80 in that month?

Mr. Keefe: No; those earnings of $1,812 by Mr. Reichter do not necessarily mean it was assigned passenger service. That was his earnings for that year. $6.80 for February indicates he only worked one or two days—probably one day in that month.

Mr. Sheean: Where, in October, 1913, the name appeared as being in assigned passenger service?

Mr. Keefe: For that man.

Mr. Sheean: For that month, that individual is then taken through the year, as shown by the payrolls of that particular railroad.

Mr. Keefe: Yes.

Mr. Sheean: Then from sheet 1 to sheet 12, the detailed information throughout the year as to each of these individuals is given?

Mr. Keefe: Yes.

Mr. Sheean: Simply as it purports to be, to supplement the various sheets of Exhibit No. 30.

Mr. Keefe: Yes.

Mr. Sheean: I think that is all as to 30.

RE-CROSS EXAMINATION.

Mr. Stone: In preparing this Exhibit No. 30, Mr. Keefe, are we to understand that all the number of men you show here in regularly assigned service, if they had worked during the month, would have made this money?

Mr. Keefe: Yes, if they had worked their full assignment.

Mr. Stone: Take, for example, your first line, Mr. Thomas. Are we to understand that if all of these men would have worked, that each man would have earned $208.99?

Mr. Keefe: Yes, for the entire 121 men.

Mr. Stone: Had worked their regular assignment?

Mr. Keefe: Regular assignment and had pooled all their earnings together, and divided amongst them, they would each have received $208.99.

Mr. Stone: He not only had to work his regular assignment but he had to pool it after he got done?

Mr. Keefe: That is the average pay for each man in the assignment. In other words, it divides the total wages between them. We have shown in columns 8 and 10 the wages made by the highest man and the wages made by the lowest man who worked a full month, which indicates that there is a difference in pay in each one of the assignments, necessarily.

Mr. Stone: Suppose a man had laid off one trip during the month, he would not be shown in this list at all, would he? He did not work his full assignment?

Mr. Keefe: This 121 is without a reference to the men who worked or laid off. It is the number of men that it takes to complete the assignment.

Mr. Stone: Then it is possible that a number of men who have worked all the month except one trip have earned lower wages than the wages you show and yet only lost one trip, so you

don't show them. In other words, do you mean to say that $118.80 earned by Ed B. Remy was the lowest rate on that road for that month?

Mr. Keefe: For the men that worked the full month's time, yes, the full assignment. Of course, if there were other men who had worked all but two days of their assignment, they may have made less than this $118.80.

Mr. Stone: The fact remains that on this first page, out of 5,412 men shown in regular assignment, you only show the wages of 62. Is that right? 62 in the high rate and 62 in the low?

Mr. Keefe: In passenger service it is 66.

Mr. Stone: You don't show them in your Exhibit 30-A, then. You only show 62 men.

Mr. Keefe: 66 on Exhibit 30-A, sheet No. 1. Mr. A. C. Allee is the number 66.

Mr. Stone: Where do you show him on your Exhibit 30-A? Oh, yes, excuse me. I have got the wrong page again. That is right. Do you show anywhere in any of these exhibits the number of miles the men ran to earn this amount?

Mr. Keefe: No, we show the total mileage in the assignment.

Mr. Stone: Another average?

Mr. Keefe: No, a total.

Mr. Stone: Well, it would be an average, wouldn't it, when you divide it up?

Mr. Keefe: If you divided it up by the number of the men in the assignment it would be the average per man.

Mr. Stone: So we don't know, for a man to earn this, whether he ran 5,000 or 6,000 miles or 4,500 miles.

Mr. Keefe: To earn the average $208.99. To ascertain the average miles of each man it would be just a simple calculation of dividing the information in column 4 into column 1. In other words, 121 into 547.272, would give you the average miles made by each one of those men to earn the $208.99.

Mr. Stone: Then you advance the theory that in a community of interest they should pool all their earnings and pay their expenses and everything else with it, should they?

Mr. Keefe: No. We are just simply showing the opportunity that is given by the company for men to earn wages.

Mr. Stone: Don't you think it would be quite an interest-

ing exhibit to show the number of years on that particular road that that next man in line who does not hold that high earned run is holding? How many years did he work before he got to that particular high spot?

Mr. Keefe: $208.99? I have made no attempt to ascertain the length of time each man was in the service of the company. It would vary, of course, upon different railroads.

Mr. Stone: You called particular attention yesterday in one of your exhibits to some man on the M. K. & T., and I think you stated that he was number 71 on the list. Wasn't that correct?

Mr. Sheean: The Canadian Northern man was the man he said.

Mr. Keefe: The Canadian Northern, I believe.

Mr. Sheean: I remember I asked about the last man.

Mr. Stone: It is the 6,000 mile man.

Mr. Park: That is J. Redmon, who appears on this last Exhibit, the one just introduced.

Mr. Keefe: The one on the M. K. & T. is J. Redmon. His earnings from his assignment was $304.60.

Mr. Stone: And I believe you stated he was No. 71 on the list?

Mr. Keefe: No, not he.

Mr. Stone: Who was it you stated was No. 71 on the list?

Mr. Keefe: As I recall it, it was Mr. Chase, of the Canadian Northern.

Mr. Stone: Well, take Mr. Chase, then, of the Canadian Northern, are we to understand from that that there are 70 men older than he who hold still better runs?

Mr. Keefe: I don't know if they hold better runs or not, Mr. Stone. I have made no examination at all as to what any man on the Canadian Northern performs individually. I have shown here the men that made the greatest wages in passenger service on that road as indicated by our Exhibit No. 26. Mr. Chase is shown on sheet No. 8 of Exhibit No. 26 as to his earnings on that road, the Canadian Northern.

Mr. Stone: Well, isn't it a fact that men are traded off in the different districts, and only hold seniority on some particular district? A man cannot go all over the system anywhere, can he?

Mr. Keefe: On some few railroads they have that practice, yes, sir.

Mr. Stone: On the Gulf & Interstate, where they have three men?

Mr. Keefe: On the road I am connected with, the engineers and firemen have system rights for passenger service.

Mr. Stone: In passenger service only, but on freight, men are confined to a certain district, are they not?

Mr. Keefe: Yes, a certain division.

Mr. Stone: And he is the youngest man when he goes over on the other district?

Mr. Keefe: If he terminates his service on one division, he goes to another.

Mr. Stone: He is transferred over. He starts in as the youngest man, doesn't he?

Mr. Keefe: If he gives up his employment in one division in order to locate on another division, unless there is some peculiar situation, he would have to begin as a new man on the division he moved to. Sometimes they do mutually change places in each division.

Mr. Stone: On some of these high earnings, you say he is regularly assigned. Is it not possible that some of these men who made these high earnings were extra passenger men who made more than a regular man who came in on one run and went out on another without waiting for his lay-over?

Mr. Keefe: No, you will find, by checking these names and pay with the information shown on Exhibit 26, that there is some difference, and that is due to the fact that the payroll includes all of his earnings. In this Exhibit No. 30, it was intended to show what his earnings on each of the assignments would be for that particular assignment, and not what his total earnings are to be.

Mr. Stone: I note you dwell all the way through on what he could have earned had he remained at work. You simply put a man on the level of a machine and leave out the human factor when you bring it down to that basis, do you not?

Mr. Keefe: This exhibit was prepared to show the opportunities that exist in each of the assigned services, for earnings by the men in that service.

Mr. Stone: And if opportunity knocks at his door and he is not home, that is his misfortune? Is that correct?

Mr. Keefe: That is the classical saying, I believe.

Mr. Stone: It is evident, by the showing of this, that some of the men were not home when opportunity called?

Mr. Keefe: Exhibits Nos. 26, 27 and 28 show the extent to which they availed themselves of their opportunity to earn the wages that it was possible for them to earn.

Mr. Stone: In compiling these, you do not recognize the fact that a man is simply human, instead of being a machine, and that he is entitled to a certain amount of recreation or lay-off? You show what his opportunity would have given him, and put that up as a basis for his wages.

Mr. Keefe: These assignments are made with due regard to a reasonable performance of work, and are not the maximum possibilities for a man to work. They are the assignments, and the men have some voice and consultation in the assignments on some of these runs, to some extent; at least they have on our road.

Mr. Stone: What is a reasonable assignment of work in passenger service?

Mr. Keefe: It varies according to the peculiarities of each individual run, or each class of service.

Mr. Stone: The fact remains that in your Exhibit 30, sheet 1, you show here 66 men, which is less than $1\frac{1}{4}$ per cent of the number of assigned men here, who made this big wage.

Mr. Keefe: The information in columns 8 and 9 is an index and, taken in connection with column 6, gives a general view as to the possibilities that men in each of these assigned services have to earn wages. Columns 8 and 10 give the high and the low wages that were made in October, 1913.

Mr. Stone: If a man could remain and work all the time of his regular assignment?

Mr. Keefe: Column 8 rather indicates that those men on those roads did remain at work and exercised their opportunity to earn good wages on their assignments.

Mr. Stone: Yes. It is also true that extra men during the month made 84,000 miles on the assignments.

Mr. Keefe: In passenger service?

Mr. Stone: Yes.

Mr. Keefe: Where did you get that information?

Mr. Stone: Column 12. Isn't that what it means?

Mr. Keefe: You are looking at sheet No. 1?

Mr. Stone: Yes.

Mr. Keefe: Isn't that 2,409,930 miles?

Mr. Stone: Exhibit 30, sheet No. 1, column 12.

Mr. Keefe: Yes.

Mr. Stone: On the Santa Fe, I was looking at.

Mr. Keefe: Pardon me. I was looking at the total—

Mr. Stone: I am talking about these same particular men. About 10 per cent of the passenger miles was made by extra men?

Mr. Keefe: By other than assigned men.

Mr. Stone: Well, I take it for granted that if he is not assigned and called, he is an extra man.

Mr. Keefe: Yes. Rather than the assigned men, some of the roads protect them from the pool—not necessarily extra men that protect passenger service.

Mr. Stone: Would it be fair to take the high amount paid here to the highest man and the low amount paid to the lowest man, and divide them by two and get the average of all the men that way?

Mr. Keefe: I would not consider it so.

Mr. Stone: Why not? Why doesn't that give a fair average?

Mr. Keefe: Because a fairer average is obtained by taking every assignment and dividing the total wages by the total assignments. That gives you a more correct and proper average of what the assignments grouped together would pay—what they would each pay.

Mr. Stone: In your fourth line, you show J. H. Lumsden. He is on the Grand Canyon Road. There are only two men there, and he was both the highest and the lowest. How did that happen?

Mr. Keefe: He worked a full month in his assignment, and he is shown accordingly under column 10. There were only—

Mr. Stone: He is also shown as such in column 7.

Mr. Keefe: As you say, there are only two men on the assignment. He was also the man who made the highest wages, and that is the reason that he was shown under column 8. He

made $165, and that happened to be the greatest wages paid one man, as well as the lowest wages paid one man who worked full time. It is a very small assignment. There are only two crews on the run, as you said yesterday.

Mr. Stone: Coming back to that man Redmon, I find in this here, on the M. K. & T. he ran 6,000 miles and made 93 hours overtime in addition.

Mr. Keefe: That is the information that we received by telegram yesterday and read into the record.

Mr. Stone: That was the man that you read into the record who was No. 71 on the list?

Mr. Keefe: No, no.

Mr. Stone: But you do not put that up as only one of the runs on the entire system? You do not know of any other run on the entire system like it, do you?

Mr. Keefe: In the month of October that was the run that paid the highest wages on the M. K. & T. proper—not on the M. K. & T. System; no, it is on the Missouri, Kansas & Texas of Texas; that is the Texas corporation. The information for the M. K. & T. proper is on the preceding line. Mr. Redmon represents the highest wages paid one man for the engineers in passenger service on the M. K. & T. of Texas.

Mr. Park: It also shows that he, for nine months of the year, drew over $250?

Mr. Keefe: As shown by Exhibit No. 30-A, sheet 1.

Mr. Stone: It is very evident that Mr. Redmon, after he made the big month in October, had to lay off to recuperate. I notice his earnings for the next month run down to $144, or something like that.

Mr. Keefe: It shows in column 41 what Mr. Redmon made throughout the year, a total of nearly $3,100.

Mr. Stone: Yes.

Mr. Keefe: The $341.60, you will notice there is a difference between that and the $304, as I explained to you yesterday. That thirty-seven odd dollars difference is the omitted months, and that $341.60 is what he actually drew, in October, but $304.60 is what his assignment pays him.

Mr. Stone: But is it not a fact, Mr. Keefe, from your experience as an operating official, that the large number of men work the best part of their lifetime, before they get old

enough to hold one of these high class, high paying runs, and is it not also a fact that they only hold it for a few years?

Mr. Keefe: My observation has been that that varies considerably, upon the lines on which they are employed, and the portions of the country. And it also varies considerably upon even divisions of the same line. Some divisions of our road, the engineers are some young men; others they are much older than they are on the other divisions.

Mr. Stone: Due to the fact that he held seniority over a certain confined district, or what?

Mr. Keefe: Due to the development of the territory within the confines of each particular division.

Mr. Stone: I note in No. 35, on your sheet 1 of 30-A, this man R. G. Smith—you show him as earning so much, and also show him as being injured there for three months. Was he paid just the same as if he had been on his run?

Mr. Keefe: He received in salaries up to the end of February—he was injured on February 22, 1914. His salary from July to that date was $2,035.03. As to what he received after that time, no attempt was made to show, and it is not the intent to convey that he did or did not receive any additional compensation.

Mr. Stone: On sheet No. 2 of Exhibit 30, you show how many men, highest pay?

Mr. Keefe: 62.

Mr. Stone: Out of 2,504 men?

Mr. Keefe: 2,504.

Mr. Stone: I also note in this local way freight service that men lay off more. The extra men make much more mileage. They make 26 per cent of all the mileage made. How do you account for that, long hours, harder service, or what?

Mr. Keefe: Why, the regular men do not stay in their assignments in that class of service, as much as they do in passenger service, and for that reason there is a greater percentage of the total mileage that is protected by other than the assigned men.

Mr. Stone: What is the reason they do not stay on their assignment? Is it because the labor is harder, or the hours longer?

Mr. Keefe: It is due to the individual's own reasons—whatever they care to offer as the reason of their laying off.

Mr. Stone: Well, this is the same man, who, as soon as he gets a few more years' seniority, is willing to work all the time, is he not—as soon as he gets over into the passenger service?

Mr. Keefe: When he gets into passenger service?

Mr. Stone: Yes.

Mr. Keefe: Generally speaking, the engineers in local or way freight service are younger men than in the passenger service, yes. There are exceptions to that general rule, of course.

Mr. Stone: He ought to be able to stand more hardship, if anything, because he is a younger man. He ought to be physically in better shape, ought he not?

Mr. Keefe: As a general proposition, they are younger men in local or way freight service than they are in passenger service. Passenger is the preferred service of all the engine jobs, generally speaking.

Mr. Stone: I understand. So a man in way freight service ought to be able to stand more hardships than an older man, ought he not, who gets up to a preferred service?

Mr. Keefe: Yes, as far as age is concerned.

Mr. Stone: Yet, the fact remains they lay off 26 per cent of their mileage, as against about 10 per cent of their mileage when they become passenger men. So there must be some logical reason for it, is there not?

Mr. Keefe: I cannot undertake to say what the reason is now, for the entire territory, Mr. Stone.

Mr. Stone: I note down here, this man O. J. Anderson, No. 24 on sheet 2 of Exhibit 30, you show him as earning $246.86, while No. 24, on sheet 2 of 30-A, if he is the same man, you show him as earning $262.96. Why is that?

Mr. Keefe: The figures shown on sheet No. 2 for Mr. Anderson, is the wages that he received in the assignment in local or way freight service.

Mr. Sheean: That is sheet 2 of 30?

Mr. Keefe: Sheet 2 of 30, yes. His total earnings, however, for services, in addition to that which he got from his regular assignment, is the difference between the $246.86 and the

$262.96. The $262.96 is what his total earnings were, for October, as shown in Exhibit No. 26.

Mr. Sheean: Shown in Exhibit what?

Mr. Keefe: Exhibit 26. Exhibit No. 26, the payroll for October, shows that Mr. Anderson drew a total of $262.96, and on sheet No. 2, Exhibit 30-A, we show his total earnings.

Mr. Stone: Then this is not correct, the highest wages paid one man?

Mr. Keefe: In that assignment, yes, it is. That is what the highest wages paid one man where in the local or way freight service.

Mr. Stone: If he earned $26 more than the average paid for the men in that service, how did he have much time to do anything else?

Mr. Keefe: In addition to his local freight run, which was between Helper and Green River, upon the Denver & Rio Grande, for which he received $246.86, he made one day in passenger service, two trips. That is one round trip of 354 miles, for which he received $16.10. He worked 27 days, which was his full assignment, in the local freight service, and in addition to that he made one passenger run, so we have shown on sheet No. 2 of 30-A, his total wages of $262.96; whereas, on sheet No. 2 of Exhibit No. 30, we have only shown his wages that he made from his assignment in the local or way freight service.

Mr. Sheean: The detailed information that you are giving now, being shown where?

Mr. Keefe: The detailed information is on page 470 of Exhibit No. 26. As I said, it was not to be implied that the highest wages paid one man on these Exhibits 30, is the maximum wages that he earned in October.

Mr. Stone: How many men, all told, are shown in Exhibit 30? Have you made any computation?

Mr. Keefe? You mean the number of men regularly assigned?

Mr. Stone: The men that you show in Exhibit 30—the names that you give in Exhibit 30.

Mr. Keefe: Oh, I have not made any figures on it at all. You mean in columns Nos. 8 and 10?

Mr. Stone: Yes.

Mr. Keefe: No, I have not made any figures.

Mr. Stone: Sheet No. 3, in mixed train service. Your extra men made 16 per cent of the mileage in mixed train service?

Mr. Keefe: Approximately that, yes.

Mr. Stone: What kind of a run was this man, Etter, on, on the Great Northern, who made $291.00? Was he taking the local rate, or what?

Mr. Keefe: The Great Northern?

Mr. Stone: Yes.

Mr. Keefe: I really do not know what his rate was, Mr. Stone. He is shown as having worked twenty-seven days; made a round trip mileage of 2,444; total of 353 hours on duty, 13.1 hours per day or 6.8 hours per trip.

Mr. Stone: What is the mileage?

Mr. Keefe: 2,444 actual miles.

Mr. Sheean: What points?

Mr. Keefe: Between Morris and Brown Valley on the Wilmar Division.

Mr. Sheean: Shown on what page?

Mr. Keefe: Shown on page 425 of Exhibit 26.

Mr. Stone: On sheet No. 4, you show the pusher service. Is it not a fact that most of these men are used in a territory where they take a higher rate, and, also, where it costs more to live?

Mr. Keefe: I have made no investigations as to what it costs to live in those territories. As a general proposition, it is where they have a higher rate, and the engines used in this service, generally speaking, from my observation, are the larger engines, which take a higher rate.

Mr. Stone: I note in your sheet 6 that your men in yard service—the extra men did 19 per cent of the work, but nowhere have I been able to find such a percentage for extra men doing the work, as they do in the local.

Mr. Keefe: The figures are the actual figures, Mr. Stone. I have not made any investigation on any line to determine the reason of that.

Mr. Stone: You said yesterday that representative men scaled back and forth, on account of the fluctuation in business. What fluctuation in business was there, Mr. Keefe, in October,

1913? Is it not a fact that about everybody—about every road had about all the business they could handle?

Mr. Keefe: I do not believe so, Mr. Stone. I know our road could handle very much more business in October, 1913, than we did, and I think the situation, as a whole, in Western territory, was that they were not crowded to their capacity at all. That was not my observation. I know it was not on our particular railroad.

Mr. Stone: Have you ever had as much business, before or since, in the last five years?

Mr. Keefe: I cannot answer that question, because I have made no study of it at all.

Mr. Stone: I believe you stated this morning that 60 per cent of these men were in assigned service—60 per cent of the men in service were in assigned service.

Mr. Keefe: At least that percentage. It is between that and 70 per cent. I gave what I thought to be the minimum amount.

Mr. Stone: And in reply to a question from Mr. Shea, I think you stated that the yard assignment was to a certain number of days, like a 26-day job, or a 30-day job, or a 31-day job. Do you mean to convey the idea to the Board that if a man was assigned to one of these runs that he would be paid that number of days, whether there was any work for him or not?

Mr. Keefe: No.

Mr. Stone: Is it not a fact, if there is not any work for that day, they do not call him out that morning or that night, as the case may be?

Mr. Keefe: That does not apply to what are known generally as regular assignments in yard service. That is probably true of the extra men, or the irregular men that are protecting the movement of traffic.

Mr. Stone: Well, but you take it in these great terminals, a yardmaster says how many engines he wanted to work for each shift, for the next day or night. If he does not think he needs all of them, he—

Mr. Keefe: I have not had any personal experience in one of these big terminals, in this part of the country, Mr. Stone. I am confined entirely to the Gulf conditions.

Mr. Stone: I notice, in going over this yearly wage of these

men, that it simply corroborates the statement we have made to the Board, at different times, that October was the banner month; with but few exceptions, October was the biggest month for all of these men.

Mr. Keefe: No; the statement shows for itself. It varies in different classes of service.

Mr. Stone: Can you take any other month in the twelve and get as high a general average?

Mr. Keefe: I have not made the attempt to do that. Whether that would be so or not, it is very easy to ascertain.

Mr. Stone: I have been trying to check over this first page in passenger men, and I cannot get any other month to come anywhere near it.

Mr. Keefe: I have not made any attempt.

Mr. Stone: Have you made any data showing the average wage of all these men on this first sheet, in passenger service—the average monthly wage, by the year?

Mr. Keefe: I made some pencil memorandums which I have before me, taking all the men in this class of service, shown on this sheet.

Mr. Stone: Well, take your first man, Thomas, No. 1. You show him $2,875.77.

Mr. Keefe: Yes, sir.

Mr. Stone: And his average monthly wage is $239.65, as against $264 for the month you show him on the high rate.

Mr. Keefe: Yes; it shows each month, what he received each month. He earned higher wages in May, March, and January than he did in October, and he also earned as much wages in December and September as he did in October.

Mr. Stone: But his average for the year was $239, just the same?

Mr. Keefe: Including the time that he was off duty, yes.

Mr. Stone: That is what tells the story in the end, is it not, how much money he got out of the pay car for the year?

Mr. Keefe: I think some consideration must be given to what extent each one of these individuals took advantage of his opportunity to earn wages.

Mr. Stone: That does not buy anything at the corner grocery.

Mr. Keefe: I do not know that any one is responsible for

that. I do not believe the railway company is responsible for that situation, in that event.

Mr. Stone: Then it is a fact, that in the end, all the man has to sell is his time, and this shows what he got for his time, for the fiscal year that he sold.

Mr. Keefe: This shows how much he drew from the railroad company, when he exercised his right to earn wages from the railway.

Mr. Burgess: Mr. Stone, may I ask a question there?

Mr. Stone: Certainly.

Mr. Burgess: Do you consider, Mr. Keefe, that 365 days in the year should be considered as an opportunity to earn money?

Mr. Keefe: No; not necessarily.

Mr. Burgess: What I mean is this: When you show, under this one engineer, E. Thomas, 25 days off in the year—that is it, if I understand it correctly?

Mr. Keefe: Yes.

Mr. Burgess: Does that mean that he worked every day in the year except 25?

Mr. Keefe: Oh, no, no.

Mr. Burgess: What does it mean? I am trying to arrive at this: Do you give any consideration to the 52 Sundays or legal holidays in the year?

Mr. Keefe: You know, Mr. Burgess, that in the assignments there is a number of days off duty. I will explain that more fully. Take the case of Mr. Thomas: He runs, as shown by Sheet No. 3, Exhibit No. 26, between Topeka and St. Joseph, St. Joseph and return; he is in a turn-around service. In October he made 30 days. He made 60 trips; made a round trip, 4,320 miles, 6.3 hours per day, or 3.1 hours per trip, for which he drew $264. That is, if I am not mistaken, on a branch line, where they work every day, and he is practically the only man assigned, or there may be two men on a group of runs there. On main line service, however, you will note that 20 days, 22 days, 21 days, is not an uncommon month's assignment. That is, they are on runs that work that number of days and consider it a full month when they work that number of days.

Mr. Burgess: That is due to the fact that he made so many miles the day that he did work that he made practically

two days; but what I was trying to get at was this, Mr. Keefe: Do you consider, if the engineer was off 52 Sundays, that he had not availed himself of all his opportunities?

Mr. Keefe: If it was in the assignment and he laid off of his own accord, that would be shown as such.

Mr. Burgess: And the same position on the part of the railroads would be taken in regard to legal holidays, similar to the position taken in regard to Sundays?

Mr. Keefe: Where the assignment is a 31 day a month assignment, yes. Wherever that condition applies, that is true. And if he laid off any of those days, including Sunday, out of his assignment, it would be considered as one day lost.

Mr. Burgess: I see. I beg your pardon for interrupting you, Mr. Stone.

Mr. Stone: All right.

As to this man Thomas that you spoke of—he is a Santa Fe man, running between Topeka and St. Joe?

Mr. Keefe: Yes.

Mr. Stone: And he leaves Topeka in the morning at 7:30, and he gets back to Topeka from St. Joe at 10:10 at night; so the spread of his run, from the time he goes on duty until he gets back at night is somewhere around 15 or 16 hours? Of course, he has got a long time off duty at St. Joe?

Mr. Keefe: He is shown as having three hours to make one leg of the trip, to get from Topeka to St. Joe, and three hours returning. I do not know the spread of hours.

Mr. Stone: That is true. You show him on duty six hours, but the fact remains that he leaves the Topeka passenger station at 7:30 in the morning, and if on time he gets back to the Topeka passenger station at 10:10 at night?

Mr. Keefe: He does nothing while laying at St. Joe, does he?

Mr. Stone: Not that I know of. I do not suppose that the railroad would allow him to sell his time to anybody else while laying there at St. Joe.

Mr. Keefe: He does not perform any other service for the railroad company at that point, does he?

Mr. Stone: No, I think not. They use all the time and take all the time he has for sale.

Mr. Stone: Take another man down here, this man Red-

mon, No. 41. He makes 6,000 miles a month, and 93 hours' overtime. That man certainly does not have any time or days off duty, unless he lays off?

Mr. Keefe: I presume that was what was considered the time lost, 63 days. He has undoubtedly, being on that McKinney-Greenville branch, a 31 day assignment. That is a full month's assignment, and he laid off 63 days of that assignment, and earned approximately $3,100 for that fiscal year.

Mr. Stone: But here on sheet No. 1, are your 66 high men that you combed the whole Western country, over 98 roads, to get, and, all told, you take the general average of all of them, and I don't find many of them in the Governor's class, when you come down to the yearly wage.

Mr. Keefe: These were taken only as to the men who earned the highest amount in October. It does not represent or is not intended to represent, the maximum earnings or, rather, the typical earnings for the men in this class of service.

Mr. Stone: But it does show that once in a man's lifetime he did hit a high spot, and there is not any guaranty that it will be continued. It does not show the years of service it took a man to reach a point where he gets this, nor is there any guaranty he will earn it for any length of time.

Mr. Keefe: He will earn it for such time as he gives his time to the company and exercises his rights of seniority.

Mr. Stone: If he is not broken down in health or is physically disabled, and he can pass the physical test, and has not reached the age limit, he may stay on the run a little while. That is what it really means in the end, doesn't it?

Mr. Keefe: I wouldn't say so.

Mr. Stone: The fact remains that the majority of these men are somewhere between 25 and 30 years in the service of the company before they get to this run?

Mr. Keefe: I don't think all of them are that way.

Mr. Stone: Not all of them, no, but I think the general average will run between 25 and 30 years in the service of the company.

Mr. Keefe: I don't think it is that high. I have made no investigation at all.

Mr. Stone: Take Samuel Walker of the Rock Island. I

happen to know the man. You show him $260, and yet all he was able to sell for the year was $1,445.

Mr. Keefe: There were two months in which he did not perform any service at all, and there were four months in which he performed less than ten days' service, I would estimate.

Mr. Stone: And yet these men who are getting up in years, like me, with the pension system of the Rock Island, are anxious to keep their monthly earnings up as high as they can.

Mr. Keefe: No, not if he desired to exercise all of his opportunity to earn wages, there is no reason why he should not have earned very much more than he did, and for reasons of his own he did not avail himself of all those opportunities.

Mr. Stone: Is that just correct, that "for reasons of his own?" The opportunity was there, if after these 35 years he had given the company he was physically able to stand up to the work. That is what it means in this particular case.

Mr. Keefe: I don't know in this particular case. I cannot talk about any particular case, Mr. Stone.

Mr. Stone: These are the 66 high men in the Western territory?

Mr. Keefe: No.

Mr. Stone: Did you find any higher anywhere?

Mr. Keefe: I made no attempt to find higher men, and there are men who make greater wages per year than these men do.

Mr. Stone: How did you come to stumble on these 66? Did not the others answer your circular letter?

Mr. Keefe: They were not asked to give the highest wages. We simply took what the payrolls of the companies showed as being the highest wages paid in this particular class of service; and subsequently we ascertained what the earnings were for the year. Exhibit A was a supplement gotten up within the last few weeks to the original exhibit, No. 30, and Exhibit No. 30 only shows the high wages made by the men in October. In my own mind, I am satisfied, if you took any other month, you would have as high or higher wages than what you would show in October for the year.

Mr. Stone: Are you making that statement from this showing of sheet 1 of Exhibit 30-A, or expressing it as a general opinion from the payrolls?

Mr. Keefe: As a general opinion, from the payrolls and knowledge.

Mr. Stone: Have you seen the payrolls for other months?

Mr. Keefe: Not all of them, no.

Mr. Stone: Then how do you know?

Mr. Keefe: Because of my general knowledge of the situation on our own lines. I have seen the payrolls for our own men.

Mr. Stone: That is all the questions I care to ask. Mr. Carter wishes to ask a question.

Mr. Carter: Please turn to Sheet No. 7 of Exhibit 30. I understand you to say in reply to a question asked by the Chairman that in all matters shown in Exhibit No. 30, 31 days at 120 miles per day was an assignment?

Mr. Keefe: No, I did not intend to say that, Mr. Carter.

Mr. Carter: Do you remember what his question was and what your reply was about 31 days?

Mr. Keefe: I said based upon 31 days.

Mr. Carter: It was based upon?

Mr. Keefe: Yes. I didn't say that was what the assignments were at all.

Mr. Carter: Well, I wish you would explain what your reply meant.

Mr. Keefe: As I recall the question, the Chairman wanted to know what would be the average daily wage of these men in their assignment, based upon 31 days in the month, and I told him that it would be upwards of $4.

Mr. Carter: For 120 miles a day?

Mr. Keefe: No, for the $125.15.

Mr. Carter: Can you tell me what your 120 miles a day for 31 days meant? I have not your reply, but you mentioned 31 days at 120 miles a day.

Mr. Keefe: I explained that to the Chairman. The Chairman raised the question and said he thought I had testified that $3.25 was a day's pay, and I explained to him, and he asked how it was he would get $4 on an average, and I told him that the mileage made by the men in the service was not confined to 100 miles, but that they made greater mileage than that per day. That is my recollection of it.

Mr. Carter: Then I understand that 31 days at 120 miles

per day means 3,720 miles per month? Then it would be upon that basis that this exhibit is shown?

Mr. Keefe: No; Oh, no.

Mr. Carter: I don't understand it. Well, if you say no, we will pass that. That was the impression I got.

Mr. Keefe: Well, I didn't intend to do that, Mr. Carter. Just a moment. In connection with the mileage per day, Mr. Carter, firemen in passenger service exclusively, they make 165.3 miles per day and not 120. The 120 was the mileage made by freight men, and the passenger men make 165 miles per day on an average.

Mr. Carter: Then, in order to be included over here on the through and irregular freight, a man would have to make 3,720 miles?

Mr. Keefe: No, no, no.

Mr. Carter: Well, I will say then 120 miles, 31 days applied.

Mr. Keefe: In replying to the Chairman's question as to what is the average earnings per man per day, based upon 31 days in the month, I replied to him that it was upwards of $4. The Chairman then asked me to explain why he received $4 and upwards when he understood that the rates of pay for firemen were about $3.25, and I wanted him to understand that $3.25 was per 100 miles; that the man made actually more miles than that, on an average, per day.

Mr. Carter: Those are the men you include, don't you, in that column? If you didn't include them how could you reach that result?

Mr. Keefe: They do. The mileage that they make enters into the pay that they get, Mr. Carter, certainly.

Mr. Carter: That is what I understood. And, therefore, if a man works 31 days at 120 miles a day he makes 7,000 miles.

Mr. Keefe: Yes, but he would make more money than $125. That is the average wages made by men in that particular class of service, which was, as I recall it, the local freight service or the passenger service.

Mr. Carter: Page 8.

Mr. Keefe: The $4 upwards of $4 per day, considering 31 days in the month, is in the passenger service, sheet No. 7. Now, for every day that a man works in passenger service he actually

made 165 miles in hours. It does not mean that he had to make 165 miles for 31 days to earn an average of $125.

Mr. Carter: But does not it mean that he must work 31 days at 120 miles a day to earn that average that you show somewhere per man?

Mr. Keefe: No, sir.

Mr. Carter: Well, where do you get that average per man?

Mr. Keefe: What sheet are you looking at?

Mr. Carter: Any of them. Average pay per man.

Mr. Keefe: On Sheet No. 7, Exhibit No. 30, $125.15 is the average wages each fireman in passenger service would receive had he remained in his assignment the entire time. That assignment may consist of 20 days, 21 days, 25 days, or 31 days. Whatever the number of days in his assignment, if he had remained in his assignment he would have earned $125.15.

Mr. Carter: Then what relation has the first column "Total engine mileage for month" to the rest? What would be the average miles he makes?

Mr. Keefe: 5,334 divided into 22,561,231, or an average of 4,213.9 miles per man.

Mr. Carter: Now, in order to get on this list of eligibles for presentation at this meeting he must earn how much?

Mr. Keefe: The average miles made by every man in the assignment.

Mr. Carter: He must have averaged over 4,000 miles.

Mr. Keefe: That is the average miles of the assignment in passenger service.

Mr. Carter: Now, on page 8, in helper and pusher service, you show that the average hours on duty are more than 11 hours. Does this include preparatory time not paid for, and time lost between trips?

Mr. Keefe: No. 8, you say?

Mr. Carter: Sheet 8. Is that right?

Mr. Keefe: Sheet 8 is the local or way freight service.

Mr. Carter: I mean helper and pusher service. What is that? What page is that?

Mr. Keefe: No. 10.

Mr. Carter: In helper and pusher service.

Mr. Keefe: What is your question?

Mr. Carter: In the average hours on duty there, or hours

per day, or whatever it is, it would indicate that the average hours on duty is more than 11 hours per day. Does that include preparatory time not paid for, and time lost between trips?

Mr. Keefe: It is ten hours—the average hours on duty—

Mr. Carter: Would be how much?

Mr. Keefe: 323 hours for the month, on an average day, 31 days of ten hours.

Mr. Carter: Does that include that? Does that ten hours include time lost between trips on these pushers going up and down the hill, when they lose time between trips?

Mr. Keefe: It includes their actual hours on duty. The total hours on duty in column 1 is the actual number of hours that the men were on duty.

Mr. Carter: And if a man was on a pusher job, where he was paid for time on duty, and would go up the hill and come back, and later on go up the hill and come back, and was paid for only the time on duty, or if he was in suburban service and was only paid for the time on duty, being relieved intermittently, the average hours on duty here would not show all those hours to which I have referred?

Mr. Keefe: You are getting helper and pusher service and suburban service together. It is my understanding that helper and pusher service is continuous, and the hours on duty would be the time for which they are compensated, would include all the time.

Mr. Carter: But suppose, on some of these trips where high wages are shown, they get pay for trips instead of by the day?

Mr. Keefe: If they get paid for trips, it would be the time actually made in each one of the trips.

Mr. Carter: And, then, on those assignments where it is shown that they are only on duty some ten or twelve hours, if they are paid per trip, the time between the trips would not be counted?

Mr. Keefe: That is true. That was reflected yesterday in the time on duty of Engineer Pauline, of the Great Northern.

Mr. Carter: On page 8 you show for the Chicago, St. Paul, Minneapolis & Omaha one V. J. Thorngren as earning $120.55. I understand that Mr. Thorngren's run was as follows: The engine rate per day, $3.35; distance, 90 miles; paid for 100 miles;

number of trips per month, 26; the run pays per month, without overtime, only $87.00. The assignment would indicate that the highest possibility, when overtime is not made, would be $87.00, and yet you show that this assignment brought to Thorngren $120.55. How do you account for that?

Mr. Keefe: His assignment for 27 days was 329.39 hours.

Mr. Carter: Would it not indicate that a vast proportion of the earnings was on overtime—$33.55 overtime, against $87 that the regular assignment would bring, if not on overtime?

Mr. Keefe: I have not made that computation.

Mr. Carter: If he worked 353 hours in 26 days, which is the assignment—you said it was 27 days there?

Mr. Keefe: 27 days; yes.

Mr. Carter: If he worked 353 hours in the 27 days—

Mr. Keefe: He worked 329.3 hours.

Mr. Carter: Well, what does the 353 mean, opposite his name on page 8 here?

Mr. Keefe: On page 8?

Mr. Carter: Yes.

Mr. Keefe: The 353 average hours on duty is for the entire 36 men regularly assigned to local or way freight service on the Chicago, St. Paul, Minneapolis & Omaha Railroad; the average hours on duty for all of the 36 was 353. Some may be greater and some less.

Mr. Carter: How much overtime do you show he made in these 27 days, in hours?

Mr. Keefe: I have no information as to that.

Mr. Carter: Can you estimate it there? I have not got it here.

Mr. Keefe: No; it does not show anything for overtime whatever.

Mr. Carter: Doesn't your book show it there?

Mr. Keefe: No, sir.

Mr. Carter: If he got $3.35 a day for 27 days, how much would that be? That is his assignment.

Mr. Keefe: I will take your calculation.

Mr. Carter. I haven't got it. I only had 26 days here, and it happened to be 31 days for the month, and he got 27 days in.

The Chairman: Is this man's rate of pay $2.25 a day?

Mr. Carter: $3.35.

The Chairman: Is that right, Mr. Keefe?

Mr. Keefe: I do not know. I assume it is. I do not dispute it, Mr. Chairman.

Mr. Carter: I am told so by our chairman—

The Chairman: Assuming that to be true, is it not reasonable to infer that any amount in addition to the amount of the total averaged at $3.35, would be on account of overtime?

Mr. Keefe: No; because his assignment may be for twelve hours. I do not know what his assignment is on that run, Mr. Carter. I do not know whether it is for ten hours or twelve hours, or thirteen hours.

Mr. Carter: It is for ten, I am informed.

Mr. Keefe: $3.35 a day for 27 days would make $90.45.

Mr. Carter: Will you please oblige me by subtracting that amount from the amount he did earn, $120.55?

Mr. Keefe: $30.10.

Mr. Carter: $30.10 is about 25 per cent as his earnings on overtime; almost exactly 25 per cent—$30 of $120.

Mr. Keefe: Yes.

Mr. Carter: How many hours was he on duty in earning 25 per cent overtime?

Mr. Keefe: His total hours on duty was 329.3 hours.

Mr. Carter: If Thorngren only worked 339 hours—

Mr. Keefe: 329 hours.

Mr. Carter: If Thorngren worked only 329 hours and you say the average of all men on duty was 353, would it not indicate that the other men made more overtime, if he made less on duty than the average? Would it not indicate that the others must have made more overtime than Thorngren?

Mr. Keefe: It would indicate that the other 35 had longer hours on their assignments, yes; because he is less than the average.

Mr. Carter: Then, when you say that 25 per cent of Thorngren's wages were overtime, it is perhaps less than where the average was 353 hours on overtime, because Thorngren was only on duty 329 hours.

Mr. Keefe: Yes.

Mr. Carter: And the average of all of them was 353 hours?

Mr. Keefe: Yes; in all local service—not only on that division, but on all the divisions.

Mr. Carter: Therefore, Thorngren's 25 per cent of overtime is apparently much less than the overtime of others if they were on a ten-hour day.

Mr. Keefe: And if the assignment was only 10 hours on all of them.

Mr. Carter: Yes. I understand, in what you call the assignments, you include all this overtime excepting 25 per cent of straight time?

Mr. Keefe: No; it includes all of the wages and all of the assignments.

The $107.35 is the average earnings for the 36 men on that road in local or way freight service. Thorngren earned the highest wages or the maximum wages of all the men in that service, $120.55.

Mr. Carter: And yet, while Thorngren, only working 25 per cent of his wages as overtime, he earned $120, while the others working more than that overtime, only earned $107.

Mr. Keefe: The average of all of them, for all of the hours, is $107.35, for an average of 353 hours on that particular railroad.

Mr. Carter: If Thorngren had worked eight hours a day every day except Sundays, how much would he have made at $2.35 a day?

I will take it back. Yes; he did not get $3.35 for ten hours. I am trying to compare Thorngren with somebody working for a building contractor. If a building contractor was working a man at the same rate, at $3.35, on an eight-hour basis, time and a half overtime, would he not have earned almost twice as much as Thorngren, for the same number of hours?

Mr. Keefe: I have not made any computation of that sort.

Mr. Carter: Summing it all up, then, it must be the long hours on duty in local and way freight service that brings these wages up so high?

Mr. Keefe: It shows the average hours on duty for each individual railroad, and the average for all the railroads, or for the 2,452 men, is 335 hours.

Mr. Carter: And any man who, of his own volition, concluded not to work that hard, for any cause whatever, sickness,

or exhaustion, would not be included as having fulfilled his assignment?

Mr. Keefe: If for any reason, of any character, he laid off of his assignment, of course he would not have made his full assignment.

Mr. Carter: Turn to sheet 11 of Exhibit 30: this is assigned yard service; you show that 5,319 firemen were regularly assigned to yard service. Only about half of them made full time; but those who did make full time averaged $86.23 per month; the average hours on duty was 337.

I find I am getting it wrong again. You say that the 337 does not have any regard to $86.23. Is that right?

Mr. Keefe: No, I have not said that.

Mr. Carter: I thought you did, in Thorngren's case.

Mr. Keefe: The 337 is the average hours on duty of all the men in the assignment, and the earnings for each one of those men would be $86.23.

Mr. Carter: I thought you said that the 337 average hours on duty was occasioned by dividing the number of regularly assigned men by the hours on duty, or something like that?

Mr. Keefe: Yes; the 5,319 men at the bottom of column 3, divided into the total hours on duty of column 1, 1,792,798, gives you 337 hours per man.

Mr. Carter: Then the 337 hours per man has nothing to do with the wage of $86.23 per month?

Mr. Keefe: Yes, it has. The total wages in column No. 2, $458,673.55, is the wages that were paid for the 1,792,798 hours on duty, between 5,319 men. 5,319 divided into $458,673.55 gives you $84.23 per man.

Mr. Carter: Then, do I understand that the men who earned an average of $86.23 worked an average of 337 hours for the month?

Mr. Keefe: Yes.

Mr. Carter: Turn back, now, to page 8. I understood you to say a while ago that the $120 paid to Thorngren did not represent an average of 353 hours.

Mr. Keefe: I said the $107.35 represented the 353 hours on duty. The $120.55 is Thorngren's wages he drew .

Mr. Carter: Then this would indicate that the names here

—the average hours worked may differ from the average hours worked by all the men who were assigned to service?

Mr. Keefe: Certainly.

Mr. Carter: If these men on page 11, these switch engine firemen who averaged 337 hours per month, or $86.23 per month —I say if these men who worked every day in the month, or 31 days, had worked only eight hours a day for 26 week days, how much would they have received proportionately? I figure it $52.

Mr. Keefe: Mr. Carter, the 337 hours does not mean he has to work 31 days in the month on that. That is the assignment. If it is 26, 27, 28, 29, 30 or 31 days, whatever the assignment calls for. It does not mean 337 hours for 31 days.

Mr. Carter: Well, we will ignore the assignments and take your figures. If men averaging 337 hours a month, averaged $86.23 a month, how much would they have averaged, working eight hours a day, for every day except Sunday?

Mr. Keefe: Well, it is 27 times 8.

Mr. Carter: No, they would get $2 a day, at the rate of 25 cents an hour, that you show here. If they got 25 cents an hour, which you show here—by dividing the 86 by 337, they get 25 cents an hour. If they worked eight hours a day, they would get $2 a day. If they worked every day, except Sunday, or 26 days, they would have earned the munificent sum of $52 a month. Is that true?

Mr. Keefe: I have not made that calculation.

Mr. Carter: Suppose I say it is true, you would not want to contradict it, would you?

Mr. Keefe: I haven't made any calculation.

Mr. Carter: Will you please make the calculation, 25 cents an hour, 8 hours a day, 26 days a month?

Mr. Keefe: 26 or 27? There was 27 days in October.

Mr. Carter: Well, there were 27, but in February, perhaps, there were less. I think 26 working days is considered an average number of working days per month. There are 52 Sundays. Make it 26. Just go through the whole year and leave out October, 1913, for once.

Mr. Keefe: Based on 25 cents an hour, for 8 hours work, for 26 working days in a month, would give $52 per month.

Mr. Carter: If that were considered a reasonable amount of hours for an employe to be given employment in other indus-

tries, why, it indicates, does it not, that in the exhibits you have shown here, that it requires much more than a reasonable amount of hours to fill what you call an assignment?

Mr. Keefe: Depends entirely upon your views of reasonable, Mr. Carter. I do not consider that, in view of the demands of the traffic and the necessities, the number of hours assigned to switching service is unreasonable.

Mr. Carter: You think that railroad men, having been trained in long hours, it would be not unreasonable for them to work 10, 11 or 12 hours, while it might be unreasonable for employes in other industries, who have not got the habit; is that right?

Mr. Keefe: I did not say so.

Mr. Carter: You have not shown hostlers here, have you?

Mr. Keefe: No.

Mr. Carter: They worked, I suppose, any old time, and you did not include the large number of them?

Mr. Keefe: Exhibit No. 29 shows the hostlers, and it does include practically all the hostlers that were engaged in that service in October, 1913.

Mr. Carter: Could you give us, from Exhibit No. 29, the highest earnings of hostlers who were regularly assigned?

Mr. Keefe: I could, in connection with Exhibit No. 28.

Mr. Carter: Cannot you give us an idea of what was the highest earnings of hostlers and the number of hours worked? Just turn to your Exhibit 29. Just pick out a high name. I don't care for any particular name. I want to get that name here. Just pick out any name at random.

Mr. Keefe: As shown on Exhibit No. 3 of Sheet 29, the average earnings for hostlers, as a class, was $85.77.

Mr. Carter: At what rate per hour?

Mr. Keefe: At 25 cents per hour, for 11.6 hours per day.

Mr. Carter: Now let us see what some roads did make?

Mr. Keefe: Or $2.94.

Mr. Carter: Let us see what the high man got. Let us rank him here with these other fellows. Give me the Chicago & North Western, the Chicago, Milwaukee & St. Paul, or some road that shows a high rate. I don't know that those roads pay a high rate, but let us see some of them.

Mr. Keefe: You can take any one you wish to.

Mr. Carter: I have not the exhibit. Give it to me and I will pick out a name. What did you say the average was?

Mr. Keefe: $85.77 for the hostlers that were available for duty, excluding those who were not.

Mr. Carter: I notice on the Canadian Pacific there are men as follows: $102; $100; $121; $100; $100; $103. Now, we will skip to another road, C. B. & Q.: $100, $101; and so forth. Now, that is all. Now, if these are the high men that were paid, it would indicate that some of the hostlers received very much less than the average you have shown; is that not true?

Mr. Keefe: Exhibit No. 29 shows what was actually paid, and shows that there were some wages less than those amounts.

Mr. Carter: If it should appear that some railroads are more liberal in calling a hostler a hostler and paying him higher wages, do you not think that other railroads could be just as liberal?

Mr. Keefe: I would prefer not to answer that question, Mr. Carter.

Mr. Carter: It might be shown that the roads that were paying the highest rates for hostlers were not as opulent as other roads; that is, their bonds are not sold at such a high premium, or something of that kind.

Mr. Keefe: I do not know. I have not made any inquiry of that character.

Mr. Carter: Now please turn to Sheet 12.

Mr. Byram: Mr. Carter, may I ask you a question before we leave this question of hostlers? Does your organization represent the hostlers on all the railroads in this movement?

Mr. Carter: We voted it, and they would have struck.

Mr. Byram: The hostlers on all the railroads voted to join the firemen in this matter?

Mr. Carter: As I remember, between 6,000 and 7,000 hostlers voted. Possibly we did not get 7,000.

Mr. Byram: Generally speaking, they were voted and the majority of them voted to join your organization in this movement?

Mr. Carter: Yes, sir. You will understand that in the limited time there were many firemen and hostlers that we did not get.

Mr. Byram: That is, regardless of whether at present there is any agreement with hostlers on these roads or not?

Mr. Carter: Yes, sir.

Mr. Byram: On roads where the hostlers, as a body, have made no negotiations with the railroads and had no schedule, they were voted, were they, too, and joined you by a majority vote?

Mr. Carter: Yes, sir. Those hostlers who have not been trying to get a schedule on those roads, where the officials had positively refused them schedules, were voted, with the understanding that, when this movement came to a close, by any process, all hostlers would benefit by the settlement.

Mr. Byram: And on roads where no request has ever been made by the hostlers of the management, for a schedule, the same process was carried out?

Mr. Carter: The hostlers in those instances made a request regardless of their failure to have done so in the past.

Mr. Byram: Just answer my question, please.

Mr. Carter: How is that?

Mr. Byram: Read the question.

(Question read as above recorded.)

Mr. Carter: I am going to do like Mr. Keefe, when he does not know, and say I do not know. I have not made an investigation.

Mr. Byram: I thought you said all the roads were voted and you had returns from all the hostlers, so I supposed you would know.

Mr. Carter: My understanding of the matter is that we voted all the hostlers. Perhaps some roads did not have enough hostlers to vote. I do not know that. For instance, on the Grand Canyon Railroad, there may not have been a hostler there, but I do not know that there is any question at this time as to the authority of this Board to fix the rate of hostlers on all roads included, and if there is, I would like to know it at this time.

Mr. Park: How about the Frisco, Mr. Carter?

Mr. Carter: How is that?

Mr. Park: How about the Frisco?

Mr. Carter: The Frisco? Why, as best evidence that the firemen are included on every railroad, the Frisco—I mean to

say the very best evidence that hostlers are included on every other road, is the fact that the Frisco was the only road that accepted it.

Mr. Byram: Your position, Mr. Carter, with regard to the roads where the hostlers are not now included in any schedule, and where no request has ever been made on the management for a schedule, by the hostlers, is that this Board ought to recognize those hostlers in its award, although they have never asked the management for a schedule?

Mr. Carter: Yes, sir. Now, please turn to page 12. Why do you not show the number of firemen of regular trains, in through or irregular freight service?

Mr. Keefe: I endeavored to explain that, rather thoroughly, I thought, in my direct examination yesterday afternoon. It is almost impossible to obtain any definite uniform basis for ascertaining when firemen or engineers were regularly assigned to through or irregular freight service, because of the variations in that particular class of traffic.

Mr. Carter: If there were ten men in a certain freight pool, and four men on the extra list for that same freight pool, would you not consider that the entire fourteen men were assigned to that freight business?

Mr. Keefe: If the extra men were not required to protect any other class of service but the through or irregular freight service, yes, but I would not consider them as being proper to be counted if those extra men protected other assignments of any character.

Mr. Carter: As many of those extra men as did protect through or irregular freight service, should be included in the assignment, should they not?

Mr. Keefe: For the days in which they protected the through or irregular freight service, yes. It would vary materially, during the month, on each individual railroad.

Mr. Carter: What is the purpose of an extra man?

Mr. Keefe: To protect all the classes of service. It varies upon different railroads.

Mr. Carter: Is it not the experience of all railroads that men have found it impossible, or impracticable, as you might say, to do all the work that they could do, and it is necessary to have extra men to relieve them?

Mr. Keefe: The extra board is a necessity, to provide for the proper handling of the company's business, when the men regularly assigned are not able or do not carry out their assignments.

Mr. Carter: Is it not a fact, Mr. Keefe, that one reason why you could not prepare a list of regular assigned men in through or irregular freight service is that very few firemen ever fire a full month in freight service, without laying off some time?

Mr. Keefe: That was not the reason why we were not able to ascertain it.

Mr. Carter: Well, is it not true that in through or irregular freight service, it is usual for practically every man to miss a trip that his engine goes?

Mr. Keefe: Throughout the month it is usual for men.

Mr. Carter: Then, in through and irregular freight service, no regular list of assigned men could be prepared?

Mr. Keefe: We found it very difficult to make such a list for October, 1913.

Mr. Carter: All of which proves or demonstrates, does it not, that in through or irregular freight service, men have to lay off?

Mr. Keefe: I do not think so.

Mr. Keefe: I don't think so.

Mr. Shea: Mr. Keefe, do you think it possible for a fireman to follow a locomotive in through freight service and make as many miles per month as the locomotive?

Mr. Keefe: I think it is possible, yes.

Mr. Shea: For every month in the year?

Mr. Keefe: I think it is possible. Not in every case.

Mr. Shea: Regardless of the size of the locomotive?

Mr. Keefe: It is possible, yes.

Mr. Shea: Regardless of the size of the train?

Mr. Keefe: Following the engine, of course he has to follow it regardless of everything.

Mr. Shea: That is what I mean.

Mr. Keefe: Yes.

Mr. Shea: And also to give him his usual time for rest.

Mr. Keefe: It is possible.

Mr. Carter: Then, Mr. Keefe, I understand, that you don't

agree with those railroad officials whom we quoted in a certain exhibit presented by Mr. Robertson, those mechanical officials.

Mr. Keefe: There were a lot of things in Mr. Robertson's statement that I don't agree with.

Mr. Carter: Then, if the mechanical official or the chief operating official, or any other official would indicate that the reply to these questions would be no, you would disagree with him, is that true?

Mr. Keefe: I was asked if it was possible, and I say it is possible. That is my opinion.

Mr. Carter: Is your opinion and attitude reflected in all the compilations you have made?

Mr. Keefe: No, sir. I was referring to answering Mr. Shea's question. He asked me, was it possible, and I said it was possible. Whether they do it, is another proposition that I have not been asked.

Mr. Carter: It is possible for some men to run 100 yards in flat ten seconds, according to the sporting record, but it is not possible that all men can do it. Is that true?

Mr. Keefe: I think that is true, if they do make it. I do not follow the sporting records. I do not know whether any men make it.

The Chairman: I am afraid we are getting outside the record here. We are getting far afield.

Mr. Carter: Then this is an exhibit of sprinters.

Mr. Keefe: I do not so consider it.

Mr. Carter: And in the Marathon race it has been a process of elimination. Those who have not reached the goal are not included.

Mr. Keefe: I have not said so.

Mr. Carter: You do show, however, on page 12, that the lowest wages paid to one man in through or irregular freight service in October, 1913, was $104.33. That is on the Atchison, Topeka & Santa Fe, H. J. Wilken.

Mr. Keefe: Yes.

Mr. Carter: Have you any idea how many other men did not make that money?

Mr. Keefe: There was no other man who worked a full month on that road who earned less than that amount of money.

Mr. Carter: And according to your statement just now,

you thought probably but very few of them would be able to do all the work tendered them in through or irregular freight service?

Mr. Keefe: I didn't say that.

Mr. Carter: If an assignment here indicated or required a fireman to make 6,000 miles, or fifteen hours a day for every day, and he was not physically able to do it, you would not show his wages on sheet 12?

Mr. Keefe: I don't so consider that there is any assignment of that character in these figures. There may be, but I don't know whether there is, or is not.

Mr. Carter: Does it not depend largely on the number of the men in the pool?

Mr. Keefe: We have shown no average or no number of men that were in this particular service.

Mr. Carter: I ask you, as an operating official, if the number of miles made by firemen in through or irregular freight service, depends largely upon the number of men in the pool, if they complete their assignment.

Mr. Keefe: And the amount of traffic that there is to move, yes, sir.

Mr. Carter: And if traffic increased, and another man was not assigned to the pool, would not the mileage per man increase very rapidly?

Mr. Keefe: Yes, if there was no increase or no adding to the number of men in the pool, and the business increased, there would be more mileage per man.

Mr. Carter: If it can be shown that on a considerable number of roads, firemen begged railroad officials to add one more man to the pool, and their begging has been denied, would that indicate the railroads desired high mileage from the men?

Mr. Keefe: I would have to know all of the circumstances surrounding a case of that kind, before giving a reply to a question of that character.

Mr. Carter: You show on page 12 that the lowest man on the Atchison, Topeka & Santa Fe, Eastern Lines, was Wilken, who earned $104.33; and you show that the man who earned the lowest wages on the Gulf, Colorado & Santa Fe Lines was Turner, who earned $94.40. Would that indicate that the wages are lower on the Gulf, Colorado & Santa Fe?

Mr. Keefe: No.

Mr. Carter: Would that indicate that they cannot make as many miles?

Mr. Keefe: No.

Mr. Carter: Would that indicate that it is harder to fire an oil burning engine on your road than it is a coal burning engine on the Atchison, Topeka & Santa Fe?

Mr. Keefe: No, it would not, and the $94.40 compared with the $104.33 is due to the peculiarities of the particular districts or divisions upon which those respective amounts were earned.

Mr. Carter: Would that not apply in like measure to these high men you are showing?

Mr. Keefe: It would apply the same to the high men.

Mr. Carter: Then you would not intend to convey the idea that those earnings here show actual practice?

Mr. Keefe: They show the actual earnings both high and low, for what was actually paid out in the month of October, 1913. They are the actual facts.

Mr. Carter: Now, if we are to infer anything from these wages here presented, I think in fairness to ourselves that we must say that these exhibits are indicative of the general practice. Is not that true?

Mr. Keefe: Yes. They show what has actually occurred, and also what are the possibilities or the opportunities to earn. In connection with Mr. Turner receiving $94.40, being the lowest man who worked full time during the month, as compared with $104.33 earned by Mr. Wilkens, you will note that Mr. Latt earned $139.20, on the Gulf, Colorado & Santa Fe Railroad, while Mr. Fitzwater earned $135.33 on the Eastern Lines of the Santa Fe.

Mr. Carter: Now, let us take Mr. Latt, to whom you refer. Would this indicate that by the process adopted to compile these exhibits, that on your oil burning road, the high man was able to earn $139.20, and the low man was able to earn $94.40?

Mr. Keefe: It does show that was what they actually earned in October, 1913.

Mr. Carter: Now, let us compare Mr. Latt, the oil burning fireman who was able to earn $139.00 as the lowest paid man on the Gulf, Colorado & Santa Fe, assigned to through and irregular freight service, with Mr. Kendall, or we will say with

Mr. Fitzwater on the Santa Fe. He earned $135.33. Would that indicate that Mr. Fitzwater on a coal burning engine was able to earn more at his present rate than Mr. Latt was on an oil burning engine?

Mr. Keefe: It shows that he actually earned $2.00 or $3.00 less than Mr. Latt did earn.

Mr. Carter: He earned $3.00 less, in round figures.

Mr. Keefe: Yes, $4.00 less.

Mr. Carter: Then it would not indicate that men on the Gulf, Colorado & Santa Fe, because of the fact they are all oil burning engines, and because of the fact that you paid $3.75 on all engines with cylinders 24 inches and over, in all classes of service, he yet cannot earn much more money than on other roads?

Mr. Keefe: I don't know what engine Mr. Latt was on. I would have to get the details. But these figures do show what was actually earned by firemen on each of these respective roads in through or irregular freight service.

Mr. Carter: Counsel for the railroads said this table showed only 26 days a month, and you said yes. That was in the cross examination this morning.

Mr. Keefe: I referred to particular classes of this service.

Mr. Carter: In yard service?

Mr. Keefe: Yes.

Mr. Carter: Is it not a fact that only in the large terminals, where they have a large amount of merchant track work, they cut out the Sunday engine?

Mr. Keefe: No, in our territory there are a number of terminals where we do not work switch engines on Sundays. I do not believe that that is confined to the large terminals.

Mr. Carter: Can you tell me how many switch engines you work on this seven day basis and on the six day basis per week on the Gulf, Colorado & Santa Fe?

Mr. Keefe: Not offhand, I cannot. I would have to get some data on that.

Mr. Carter: Could you not give us an idea?

Mr. Keefe: It varies at each one of the terminals. At Dallas, for instance, as I recall it—I am giving it from memory; I have been a year away from the operations, and I have not seen any of the work sheets there—but as I recall it, they worked

three engines days and four engines nights, there, on week days. On Sundays if they work two engines days and two nights they are doing more than ordinary.

Mr. Carter: What do you do at Cleveland?

Mr. Keefe: I cannot recall. At Cleveland we work a less number on Sundays than on week days, according to my recollection. It is very much smaller than it is at Dallas.

Mr. Carter: And Temple?

Mr. Keefe: I do not recall about Temple. We work less engines on Sundays than we do on week days, not very much, but probably one or two engines a day less.

Mr. Carter: Is it not a fact that a vast majority of the switch engines in service on these Western roads work every day?

Mr. Keefe: I would not say a vast majority of them. There is a majority of them, no doubt, worked every day. I do not know. I have made no examination as to whether they worked 27 or 31 days. The exhibits themselves, 28 and 29, will indicate what proportion of them worked on 27 or 28 or 31 days.

Mr. Carter: Then, when the question was asked that this table showed only 26 days a month and you in reply said yes, it produced a wrong impression, did it not?

Mr. Keefe: It is plain in itself as to what it shows. Wherever men worked 26 days or over they were considered as having worked a full month.

(Whereupon, at 12:30 o'clock P. M., a recess was taken until 2:30 o'clock P. M.)

After Recess.

J. H. KEEFE was recalled for further examination and, having been previously sworn, testified as follows:

Mr. Carter: Turn to sheet 8 of Exhibit 30-A, Mr. Keefe, where the letters "O. S." do not appear before amount indicated, there was nothing earned in other service?

Mr. Keefe: Why, I want to explain that "O. S." We have received—had already received a report showing the earnings of these men that are shown as "O. S.," and the earnings above that are what he earned in the assignment in which he was in, and the "O. S." are the figures that he earned outside of that

assignment. Now take that as applying, say, to Mr. Mays, No. 5. No. 4, we did not ask them to separate his earnings between the asignment and his other earnings. We have, as between the assignment and other earnings, simply lumped it here and show the total earnings, whether it was in the assigned service or otherwise.

Mr. Carter: Who was that, Mays?

Mr. Keefe: I was referring to Mays.

Mr. Carter: Jackson, next to him, is that the same way?

Mr. Keefe: Those are his earnings as a total, not necessary in the assignment. We had already Mr. Mays' earnings, and I did not have to telegraph for that, but the information I got for Mr. Jackson was lumped for the total earnings.

Mr. Carter: Then could some of the high wages that he is presumed to have earned in passenger service—some of it—also be earned in freight service?

Mr. Keefe: For the year. Those earnings do not represent all passenger earnings. They are his total earnings—these, gentlemen, starting with No. 1 and going to No. 60, are his total earnings, from whatever source.

Mr. Carter: And then this showing for assigned passenger service might include considerable money earned outside of passenger service?

Mr. Keefe: If he earned any outside of passenger service, it would be included in there.

Mr. Carter: But if the "O. S." does not appear, you do not know whether he earned it outside of passenger service or not?

Mr. Keefe: No.

Mr. Shea: Mr. Keefe, would that include any compensation received as an enginer?

Mr. Keefe: It would include his compensation, whatever he received it for, in this case.

Mr. Shea: In combined service?

Mr. Keefe: If he was in combined service, yes.

Mr. Shea: I understood this was to include only just compensation received while working as a fireman.

Mr. Keefe: This is the compensation that he received for the year, in the case of the fireman, his total compensation.

Mr. Carter: Please take the first name that you present

there—B. J. Reece. I note for the month on which all these computations were made, Reece earned $145.28.

Mr. Keefe: Yes, sir.

Mr. Carter: And the four last months named there, I understand, are for March, April, May and June, 1914; is that true?

Mr. Keefe: Yes.

Mr. Carter: According to my calculations here, for the last four months of the year, he earned an average of only $78.77, while for October he earned $145.28, which would indicate that the earnings for October exceeded the average earnings for the last four months given, by $66.50; is that correct?

Mr. Keefe: I take it your figures are accurate.

Mr. Carter: If my figures are accurate, I mean.

Mr. Keefe: Yes. Of course, in the last four months no allowance has been made for time lost, in case he did not work where he was laid off, or for any reason he did not work.

Mr. Carter: Would that indicate that, so far as Reece is concerned, on that road or that division, wherever he was, that that was about all the earnings he could make?

Mr. Keefe: No; that indicates just what he actually did earn. There is no indication there as to what he could have earned. Just simply indicates what he actually did earn.

Mr. Carter: Well, do we understand, then, that he could have earned $66, or practically that much more in October, 1913, than in any one of the last four months named?

Mr. Keefe: That he actually did earn that much more in October than he did in any of the other four months.

Mr. Carter: I understand, though, he could have earned all that was coming to him by this exhibit.

Mr. Keefe: This exhibit does not tend to indicate all that the men could have earned. It shows what they actually did earn.

Mr. Carter: Is it not a fact, Mr. Keefe, that the variations in the earnings of Mr. Reece indicate the possibilities of all the months of a twelve months period?

Mr. Keefe: I don't so infer.

Mr. Carter: Well, take Mr. Stanton, the third name. He earned $153.00 in October, and his average for the last six

months would fall (I am going to guess) much less than $50. Is that right?

Mr. Keefe: Approximately. I have not figured the last six months' earnings.

Mr. Carter: Well, take the name of D. Campbell, right under Reece. It would appear that he did not earn much any month. He did not earn as high as the others.

Mr. Keefe: Mr. Campbell was employed on—

Mr. Carter: Was he employed on the Bellingham & Northern?

Mr. Keefe: Yes, on the Bellingham & Northern.

Mr. Carter: Will you please look at your Exhibit No. 7 and see how much he made in other service?

Mr. Keefe: He made a total of $97.20 all told. That was in way freight service twenty-five days, between Bellingham and Glacier.

Mr. Carter: Would that all be included in this?

Mr. Keefe: It is all included in this, yes, sir.

Mr. Carter: Well, then, for the last four months, Mr. Reece averaged $57.19 a month, and if it were a thirty-one day month, like October, he would have averaged $1.84 a day, would he not?

Mr. Keefe: Mr. Reece? You mean Mr. Campbell, don't you?

Mr. Carter: I mean Mr. Campbell.

Mr. Keefe: Whatever the computations are.

Mr. Carter: About that.

Mr. Keefe: Yes.

Mr. Carter: Now, the last six months Mr. Stanton worked, we are assuming it run about $1.84 a day. Did he earn anything besides that?

Mr. Keefe: Those were his total earnings for the year, as I understand the report.

Mr. Carter: And then, although Mr. Stanton is shown here as earning $153.55 in October, 1913, his average, per day, for the last six months of the year was considerably less than $2.00. Is that true?

Mr. Keefe: I don't know whether he laid off, or what his reasons were for his earnings in the last six months. His earnings for that period are shown on this exhibit.

Mr. Carter: Was not there quite a change in business between October, 1913, and the last six months shown there, beginning January, 1914, until June, 1914?

Mr. Keefe: That is on the Santa Fe Coast Lines?

Mr. Carter: Yes.

Mr. Keefe: I am personally not aware. I believe there was some falling off in their traffic.

Mr. Carter: Now, taking all of this into consideration, don't you think these high rates that are shown here for certain selected men, men who have fulfilled all of their assignments for October, is quite confusing to me, or anyone who would read this?

Mr. Keefe: I don't know whether it is confusing to you or not, Mr. Carter.

Mr. Carter: Well, would it indicate what the earnings are of a man showing these high rates—of certain men for certain months?

Mr. Keefe: The primary purpose of Exhibit 30, as I explained to you, was to show the possibility that existed for earnings in this assigned service, if a man desired or cared to take the opportunity, to take advantage of those possibilities; and in substantiation of the fact that the averages as shown are not high or low, we have shown what wages were paid to the highest men in October and what was paid to the lowest man who worked the full month.

Mr. Carter: But Exhibit 29, I believe, shows the entire matter collectively, does it not?

Mr. Keefe: Exhibit 29 is a summary of the detailed information shown in Exhibits 26 to 28, inclusive.

Mr. Carter: And includes everybody, Sheet 1 does?

Mr. Keefe: Sheet 1 of Exhibit 29 includes every one, regardless of the length of time they worked, whether it was one day or thirty days.

Mr. Carter: On you road, Mr. Keefe, considering the amount of money you pay to firemen for which they render no service in either hours or miles, as I understand you to say, and on account of these rules in our proposition that would be so terribly expensive to the railroads, would you be willing to place all firemen on the Gulf, Colorado & Santa Fe Railroad, except in passenger service, on an eight hour a day basis, with time and

a half for overtime, with the rates per hour you show in Exhibit 29, as a substitute for our proposition or whatever is awarded by this Arbitration? Eliminating all this penalty business and all this arbitrary business, and putting every man on the Gulf, Colorado & Santa Fe on an eight hour day except the passenger men, paying him the rates you show in Exhibit 29 in the different classes of service , and paying him time and a half for overtime, in exchange for anything in our proposition or anything that might be awarded?

Mr. Keefe: You are betting on a dead sure cinch, aren't you, Mr. Carter?

Mr. Carter: No, sir; I am saying in our proposition or in anything that may be awarded after this Arbitration is over. Will you exchange what the men get here, freight service, yard service, pusher and helper service, local way freight service and all other service except passenger service, and give to them in exchange for what they get here, an eight hour day, time and a half for overtime after eight hours, on the rates you say they are earning?

Mr. Keefe: On your basis I think it would be most unfair. Men would receive an unreasonable compensation for the services they perform.

Mr. Carter: Then, Mr. Keefe, if railroad men received the same compensation and under the same working conditions that men in the building trades receive, and the wages you say they are earning, it would be an unreasonable request?

Mr. Keefe: You have not placed it upon the same basis or plane at all, Mr. Carter.

Mr. Carter: That is all.

Mr. Shea: Just another question there, Mr. Keefe: Take on Sheet 7, Exhibit 30, firemen in assigned passenger service: Does this compensation of any of the firemen include compensation received as engineers?

Mr. Keefe: No, sir; not for the month of October.

Mr. Shea: It is all firemen?

Mr. Keefe: All firemen, in the particular class assigned; for instance, Sheet 7 is for firemen in passenger service.

Mr. Shea: Yes, but Exhibit 30-A does.

Mr. Keefe: The annual report, for the year, includes their total earnings.

Mr. Stone: I should like to ask one more question of Mr. Keefe, if I may be permitted to do so.

Mr. Keefe, have you prepared or can you give us the information as to how many engines, in the railroads represented here, are paying a fireman the $3.75 rate? Do you have that information?

Mr. Keefe: I think our Exhibit No. 1 shows that information.

Mr. Stone: It does show it?

Mr. Keefe: Yes.

Mr. Stone: In the rates of pay?

Mr. Keefe: I am sure that Exhibit No. 1 shows the number of engines in October, 1913, that paid the $3.75 rate to firemen.

Mr. Stone: Then I can take that exhibit as being the correct basis of the number of engines in the Western territory that are now paying the $3.75 rate?

Mr. Keefe: That did pay the $3.75 rate in October.

Mr. Stone: You do not know whether any of them have bushed the cylinders of their engines to keep from paying the $3.75 rate or not, do you?

Mr. Keefe: I do not know what has been done since October, 1913, practically, in the railroad game.

Mr. Stone: You do know all the rest of the Santa Fe system, except the Santa Fe proper, or the Gulf, Colorado & Santa Fe, have bushed the cylinders of their locomotives to keep from paying it, do you not?

Mr. Keefe: Not all of their engines. My recollection is that there are still some engines, even on the Santa Fe proper and the Coast Lines, that have still got 25-inch cylinders. I just say that from general observation, and not from detailed information. There were a certain number of engines that were bushed from 25 inches to 23½-inch cylinders subsequent to the award, on the Santa Fe proper.

Mr. Stone: For the sole purpose of keeping from paying the award, was it not?

Mr. Keefe: I think it is safe to make that assumption on it, Mr. Stone, yes.

The Chairman: What do you mean by "bushing the cylinders," Mr. Stone?

Mr. Stone: I have here a blue print of the Santa Fe system; they had a number of the 1270 class that had cylinders 25 inches in diameter. After the award of the firemen came out, they put a sleeve or bushing in those cylinders, making them 23½ inches, in diameter. The award said $3.75 should be paid on engines having cylinders 24 inches and over in diameter. By bushing the cylinders to 23½ inches, and super-heating the engine, they did not have to pay the high rate for firemen.

We had the same effect in our award, when we had engines weighing 215,000 pounds on drivers. The award read: "Engines weighing 215,000 pounds or over on drivers" had to pay 25 cents additional in rate. Engines that weighed 217,000 and 218,000 pounds on drivers, and were so stenciled on the side of the cab, had the number at once painted out and they were made to read 214,000; and they are still weighing that yet, in some cases. That is what brought out the question of determining, once for all, the fixed weight of the engine on drivers, that is one of the articles in our request. This is the Santa Fe blue print that I have here:

"Authority given to reduce cylinder bore from 25 inches to 23½ inches on Coast and Western Line engines. Original diameter retained on the Gulf Line engines."

That is on the Gulf, Colorado & Santa Fe.

Mr. Sheean: Mr. Stone, have you any knowledge or information as to whether the 217,000 or the 214,000 was the correct or incorrect weight in those cases?

Mr. Stone: I take it for granted that the locomotive builders, who have track scales capable of weighing the entire engine, knew the weight of the engine, and stenciled it on the side of the cab.

Mr. Sheean: But when the rate was fixed on the basis of weight, there was a change in the notation on certain engines, as to the weight.

Mr. Stone: There was, after the rate came out, yes, sir.

Mr. Sheean: And, whether the one that was there before, or the one that was there after, was the correct one, or not, you do not now advise the Board?

Mr. Stone: I imagine the first one was the correct one, for the reason the railroad companies did not have a track scales long enough to weigh the entire engine, so they ran one

end of the engine on and weighed it, and then they ran the other end on and weighed it, and by calculation, decided on the weight.

Mr. Sheean: All I wanted to develop now was, you stated you imagined the weight of a certain engine was correct, and you have no knowledge as to which was correct or incorrect?

Mr. Stone: No. But it is strange they discovered, as soon as we got in a war, that the engines had dried out and had become about 4,000 pounds lighter in weight.

Mr. Sheean: Was that all on this Exhibit?

Mr. Stone: That is all.

RE-DIRECT EXAMINATION.

Mr. Sheean: Mr. Keefe, has there been prepared under your supervision, Exhibit No. 31?

Mr. Keefe: Yes, sir.

(The document so offered and identified was received in evidence and thereupon marked "Railroads' Exhibit No. 31, February 3, 1915.")

Mr. Sheean: There was introduced, Mr. Keefe, as Exhibit No. 8, certain tables purporting to show the earnings of locomotive engineers and firemen, for the first few years in service, and effect thereon of fluctuations in railroad business, and in connection therewith, certain summaries were set forth in that exhibit. Have you caused here to be reprinted the same tables and exhibits which are shown in Exhibit No. 8, adding thereto, however, the other earnings which the same men made, during the same periods of time covered by this exhibit 8?

Mr. Keefe: Yes, for a certain portion of the men—men that were promoted.

Mr. Sheean: On page 16 of this Exhibit No. 8, table 3, showing the number of engineers promoted since January 1, 1914, total earnings, and the average monthly earnings, what changes are made in the deductions which were drawn by Witness Carter in connection with Exhibit 8, as to the earnings of the men shown in this exhibit?

Mr. Keefe: In his exhibit he showed that the average earnings per month of engineers promoted was $88.62, in the month of February, 1913. He did not take into consideration the earnings that those same men made as firemen in that month,

which aggregated such additional compensation as to make the average earnings per man $108.21, instead of $88.62. For the month of June, he shows the average earnings per month of $80.27. Adding thereto the earnings made by those same men as firemen, their earnings were $108.88.

In the month of October, 1913, he shows the average earnings of those promoted men as $96.77, when the correct earnings including those earnings as engineers, was $122.20.

In June, 1914, he shows the average earnings as $67.43 per man. If the earnings as firemen had been taken into consideration, he would have found that their average earnings were $103.50.

These additional earnings that have been added were only their earnings as firemen. Some of the men also made earnings as hostlers, but those earnings have not been added into these earnings; simply their earnings as firemen.

Mr. Sheean: You have taken the same list of men shown in Exhibit No. 8 on the same rates that Mr. Carter shows in his table as Table No. 3, have you?

Mr. Keefe: Yes, precisely the same men.

Mr. Sheean: And following out those same men, upon the same roads, and using his formula by which he made the deduction, the average earnings of $88.62, applying that same formula to the actual money paid those actual men, it brings the average to $108.21, instead of $88.62.

Mr. Keefe: That is on the basis of his counting every man, whether he worked one day or thirty days, as a man who worked in the month. On that same formula the correct earnings are approximately $20 per month more than what he asked.

Mr. Sheean: And following this summary on the first page— This does not seem to be paged.

Mr. Keefe: That is a reprint of part of a summary on page 16.

Mr. Sheean: Following that is a reprint of table 3.

Mr. Keefe: Is a reprint of pages 20 and 21, which shows the information by individual railroads, of which the previous report is a summary—the previous page is a summary. On pages 20, 21, 22 and 23, are the totals by different railroads.

Mr. Sheean: And you have taken the earnings shown in the one column, being the same column as shown in Mr. Carter's

exhibits, and have added the earnings made in the employment of the same railroad company during the same time?

Mr. Keefe: Yes.

Mr. Sheean: And arriving at his total earnings in that way?

Mr. Keefe: Yes.

Mr. Sheean: In table 9, Mr. Keefe is—

Mr. Keefe: Page 38, commencing at page 38 and continuing throughout—

Mr. Sheean: Oh, yes, page 38, yes.

Mr. Keefe: Commencing there and continuing throughout the book is a reprint of the same pages of Witness Carter's Exhibit No. 8. Adding to the wages as engineers the wages of firemen, as well as their total wages, and there has been added after October their earnings for the twelve months ending December, 1913.

Mr. Sheean: So that the same individuals which appear upon Mr. Carter's exhibit are traced through the same period of time, and show the total money which those men drew?

Mr. Keefe: Yes.

Mr. Sheean: Then, in addition to that, you show the total earnings of those individuals for the entire year 1913?

Mr. Keefe: Yes.

Mr. Sheean: Simply following the form of this exhibit, as made by Mr. Carter, and using the same men, and putting all their earnings in, and then showing the entire earnings, for the entire year, for those men?

Mr. Keefe: Yes; these are the promoted men. You understand that Mr. Carter said they had a precarious income, as well as salaries.

Mr. Sheean: These are the ones who were promoted on these roads, since January 1, 1912?

Mr. Keefe: Yes.

Mr. Sheean: And covers the identical men covered by Mr. Carter's Exhibit No. 8?

Mr. Keefe: Yes.

Mr. Sheean: Using the same method of summarizing, as to all roads, same methods as to each individual road, and the same method of detail, giving the name of the individual and his money?

Mr. Keefe: Yes; in his Exhibit No. 8, Witness Carter did not give the details, by names of men for all railway companies, only for four or five companies. Whatever companies he selected and showed there, we have carried out their earnings as firemen, as well as earnings for the year 1913, the same identical men, and have not enlarged upon his exhibit.

Mr. Sheean: That is, you have not added any other men, or any other part of any other railroad, or any other railroads, except the ones that are shown in this Exhibit 8?

Mr. Keefe: That is correct.

Mr. Sheean: And it is simply to give the complete information as to the same men selected or used in Exhibit No. 8, for the purpose of showing the fluctuations, or the effect of the fluctuations upon locomotive engineers and firemen.

Mr. Keefe: Yes.

Mr. Sheean: Anything further that you wish to explain, Mr. Keefe, as to this exhibit?

Mr. Keefe: No.

Mr. Sheean: You may cross examine.

RE-CROSS EXAMINATION.

Mr. Stone: Are these totals, Mr. Keefe, showing what he could have earned if he had been available for service, or what he really did earn?

Mr. Keefe: What he really did earn.

Mr. Stone: No hypothetical case about it at all? He really earned this?

Mr. Keefe: Yes. No ifs or ands; what he actually did earn.

Mr. Stone: And the average for all is what—$108?

Mr. Keefe: It is shown for February, $108.21; yes.

Mr. Stone: We understand this is a verbatim copy of Engineers' and Firemen's Exhibit No. 8, so far as the rates and the names of the men are concerned.

Mr. Keefe: Yes, adding thereto their earnings as firemen.

Mr. Stone: And the amount arrived at is really what the men did earn, improving every opportunity that they could, to work during that month?

Mr. Keefe: No, not necessarily that. What his actual earnings were that he did work. Whether he improved every opportunity or not, I cannot say.

Mr. Stone: You did not show anywhere here, do you, in any part of the exhibit, how much he could have earned if he remained at work, or had been available for service, or anything?

Mr. Keefe: No, sir.

Mr. Stone: Then is it not fair to assume that he was available for service all the month, in one class or the other?

Mr. Keefe: No, sir; there are cases here where he only earned—some men, I notice, only earned a few dollars and were laying off of their own accord the balance of the month. Quite a number of instances of that character.

Mr. Stone: That was all. Mr. Carter wants to ask some questions.

Mr. Carter: Mr. Keefe, did you check up our Exhibit 8, with your forms 15, 16, 17 and 18, that you furnished us for our information?

Mr. Keefe: Only as they appear in your exhibit No. 8.

Mr. Carter: Well, those that you did check up, did you find that we deviated from the information furnished us?

Mr. Keefe: No; there were a few deviations, which were mechanical errors, and not anything else.

Mr. Carter: Nothing in considerable quantity?

Mr. Keefe: No.

Mr. Carter: On your form 16, you supplied information as to the earnings of promoted engineers, did you not?

Mr. Keefe: You say, "Your form 16," Mr. Carter. That form 16 was what the railroads furnished, at the request of the Engineers and Firemen's Committee. The Engineers and Firemen's Committee stated that they desired the railroads to obtain for them some information from the railroads and we undertook to secure from the railroads the information that you thought necessary for your purposes.

Mr. Carter: And when you furnished that form 15, you did not communicate any information, by footnote or otherwise, that these men had earned money as firemen, did you?

Mr. Keefe: We only asked the roads to furnish us the information on forms 15, 16, 17 and 18, that you indicated that you would like to have from the railroads.

Mr. Carter: And when I thought I was asking for what I wanted, why, I got only the earnings as engineers, without any intimation that they had earned other money as firemen.

Mr. Keefe: The Conference Committee of Managers undertook to secure for you, Mr. Carter, all the information of whatever description you desired to have from the railroads.

Mr. Carter: Did you know at the time you delivered those sheets to us, that it did not cover all the earnings of these promoted engineers?

Mr. Keefe: Why, that was plainly shown on the face of the form, that you did not ask for the information as to earnings as firemen.

Mr. Carter: And then, where the layman or the reader fails to detect that a form, so prepared, does not communicate all information upon the subject, you permit the layman to fall into error; is that right?

Mr. Keefe: I did not consider you were a layman in matters connected with railroads, Mr. Carter. I thought you knew what information you wanted, and asked for it, and it would be presumption on my part to suggest information that I thought you might have.

Mr. Carter: Well, is it not a fact that many other statements that you have prepared and presented here, might also give other information, if we knew how to ask for it?

Mr. Keefe: That is a pretty broad question. That would be rather too serious a reflection upon your committee, Mr. Carter. I would rather not answer that question.

Mr. Carter: Well, if I fell into such error, and not being a layman, upon the information furnished by the railroads, without any warning from them, might I not fall into error on any other exhibits presented here, or any exhibit presented here, if I don't happen to ask the right question?

Mr. Keefe: Undoubtedly, if you do not ask the right questions—compile your information in the right manner, you certainly are liable to go into error, Mr. Carter.

Mr. Carter: Now, Mr. Keefe, did you prepare a similar statement or exhibit—an exhibit similar to 31, for the hired engineers?

Mr. Keefe: No, I did not.

Mr. Carter: Then, would Exhibit No. 8 be accurate, so far as hired engineers are concerned?

Mr. Keefe: No, because on such roads as permit hired engineers to do any other work—go back to firing, if there are

any roads—I understand there are probably few of them that do, we have not shown any information as to what their earnings are: We only have the information for the promoted engineers.

Mr. Carter: If I should assume that Exhibit 8 is approximately correct for hired engineers and for firemen, will you now caution me not to make error?

Mr. Keefe: I don't quite understand.

Mr. Carter: It has been demonstrated that I misunderstood the information furnished by the railroads, concerning the earnings of promoted engineers. Now, I ask you, can I assume that I have not misunderstood the railroads, concerning the information furnished, concerning hired engineers and firemen?

Mr. Keefe: The information furnished for hired engineers and hired firemen, was furnished you precisely in the form in which your committee asked that it be supplied to you, by the individual railroads. It does not, in my opinion, cover all the wages or earnings by these hired engineers or hired firemen, because it is possible and probable that some of those hired engineers and firemen also received additional wages from the railway companies, other than shown as hired engineers or firemen.

Mr. Carter: Can you tell me about how much the hired engineers received from your company, during the period covered, other than their pay as hired engineers?

Mr. Keefe: I can not.

Mr. Carter: Do you think it would be like we had the other day in the record, one-half of one-tenth of one per cent?

Mr. Keefe: I do not know what it would be, Mr. Carter, but with our particular company, the G. C. & S. F. Railroad, we have hired very few engineers in this period of time, and it is my impression that they did not receive any other wages, in any other class of service, other than as engineers. That is on the G. C. & S. F. Railroad I am speaking of.

Mr. Carter: Do you not think that would be the experience on all roads?

Mr. Keefe: I could not undertake to answer that question, until I was more conversant with some of the rules and practices of some roads, as to permitting hired engineers to go back, firing. I know that hired firemen are taken out of the shops and do

make other wages, besides their earnings as firemen, in the same month.

Mr. Carter: Then, as far as you know, and as far as I know, forms 16 and 17 also may not show exactly what we think they mean.

Mr. Keefe: That is relating to the wages of hired engineers and hired firemen?

Mr. Carter: Hired engineers and hired firemen.

Mr. Keefe: That is possibly true.

Mr. Carter: Do you think that they are accurate, Forms 17 and 18?

Mr. Keefe: Why, I said that—

Mr. Carter: We don't know.

Mr. Keefe: I said that it was probable that they have the same errors that your Form 15 or 16, the ones relating to the promoted firemen, may have, because it is possible and probable that they had received earnings other than as hired engineers or hired firemen, particularly the latter.

Mr. Carter: Then, if the railroads, upon special requests from the Engineers' and Firemen's Committee should have furnished information which neither you nor I understand, is it not possible that much of the information furnished by these same railroads, on which you have compiled your exhibits, may also be misunderstood?

Mr. Keefe: I have not stated at any time that the information that was furnished to the engineers and firemen by the railroads, at the request of the engineers and firemen, was not understood by me.

Mr. Carter: Well, then, I thought you just now said you didn't understand what the information furnished us concerning hired engineers and firemen really meant.

Mr. Keefe: No, I didn't say that at all. I said it was possible and probable that the information concerning the amount of wages earned by hired engineers and hired firemen particularly did not contain all of the earnings of such men, but they probably had earnings from the railroads in other class of service that was not reflected upon those forms.

Mr. Carter: If there were a pit dug in a trap, and a train was approaching, would it be incumbent upon those who wanted

to save that train, to put out a red flag to protect that train from injury?

Mr. Keefe: Certainly.

Mr. Carter: It is not incumbent, however, on the railroads in furnishing information that might mean something that it doesn't say and might mean something else in addition that it doesn't say, to warn anybody?

Mr. Keefe: I don't think our Committee could have been in a position to know what you wanted, and it took particular pains to make certain that the blanks on which we asked for the information, and the instructions that were sent out, were what the engineers and firemen desired to obtain from the railroads, and for that purpose forms and instructions were submitted to the Engineers' and Firemen's Committee for approval before they were sent out. It would be presumptuous on the part of the committee to attempt to dictate, if you please, to your committee, what information you should receive from the roads, particularly as you wanted the information for your own purposes without disclosing the ends that it was to be used for.

Mr. Carter: I then understand that even though you knew when you or your committee delivered our committee these blanks that these men were earning more money than shown in Form 15.

Mr. Keefe: We gave you the information precisely as you called for it. You asked for the wages of these men as engineers only. We knew, and we assumed it was certainly correct that you should know also, that those men made earnings as firemen as well as engineers, because it is a common practice for promoted engineers to earn wages as firemen as well as engineers.

Mr. Carter: You thought we were grown men and should be on the lookout for those things?

Mr. Keefe: No, we assumed that you knew perfectly well what information you desired to obtain.

Mr. Carter: And if we could not discover that we were in error, it was not your duty to call attention to our error?

Mr. Keefe: We had no means of knowing you were in error. We thought we were right in assuming that you were after the information precisely in the way you wanted to obtain it, and we furnished it to you in that manner.

Mr. Carter: And in reply to any questions asked you or any other witness, I suppose, during these proceedings, if the answer does not clearly set forth the facts, so long as you answer the question it is not up to you to explain the facts? Is that right?

Mr. Keefe: I think that is an improper question, Mr. Carter.

The Chairman: What was the nature of the request you made, Mr. Carter?

Mr. Sheean: It is here, Mr. Chairman, and I think there is no dispute about it.

Mr. Carter: I have the letter here. We asked—

The Chairman: That would give more light upon the matter than a mere discussion of it.

Mr. Carter: I understand, now, our request was not a proper one. We have learned since that we should have made our request differently. We first asked for the earnings of all promoted engineers, and next for the earnings for all hired engineers, and next for all firemen placed in employment subsequent to January 1, 1912, up to February the last—the 27th or whatever it was—1914; our purpose being to show the small earnings of those men who are down on a seniority list as affected by changes in business and big engines.

Mr. Byram: Did you disclose that purpose to the committee?

Mr. Sheean: The whole correspondence is here.

Mr. Byram: The whole point is whether the committee knew what your purpose was, Mr. Carter. How could they warn you if they did not know what your purpose was?

Mr. Carter: I suppose they could not.

Mr. Park: I would like to hear the correspondence.

Mr. Sheean: Under date of March 3, 1914, there is a letter addressed to Messrs. Stone and Carter, reading as follows:

"As a matter of information to you, there is enclosed a copy of letter addressed to all railroads which the Conference Committee of Managers represent in the negotiations now under way.

"The Conference Committee is preparing a considerable amount of data, some of which you may be duplicating.

"Confirming my assurance to you at a recent conference,

that the statistics which the Committee is preparing for the purpose of showing the effect of the two propositions, are open to your inspection, it is the thought of the Committee that better results will be obtained if you will make your requests upon this Committee for any information which you desire from the railroads for use in connection with the subject matter of our negotiations, so that there may be uniformity among the roads in the manner in which any data are compiled. Please understand that we have no thought, in making this suggestion, of curtailing in any way any information which it is proper for you to ask of the railroads.

"If this matter is not fully understood by you, we should be very glad to discuss it with you at the next meeting."

That was signed by the Chairman of the Conference Committee of Managers.

Under date of March 8, 1914, a letter signed by Messrs. Stone and Carter, was addressed to the Chairman of the Association of Western Railways, reading as follows:

"This will acknowledge receipt of your letter of March 3, addressed to us jointly, in which you state"—

Then quoting the part I have just read; and the letter continues:

"In compliance with the above, we would ask to be furnished with the following information:

"1. How many engineers were on the engineers' list on each division of road of the railroads represented by you on February 1, 1913? How many engineers were on the list on the same divisions of the railroads represented by you on February 1, 1914?

"2. How many firemen were on the firemen's list on February 1, 1913, on each division of road of the railroads represented by you? How many firemen were on the lists of the same divisions of road of the lines represented by you on February 1, 1914?

"3. (a) How many years of seniority as an engineer has the oldest fireman now firing on each seniority district, or division, on each railroad represented by you? (State his name and when he was first promoted to the position of engineer.)

"(b) What proportion of his time has he been employed

as an engineer and what proportion as a fireman since his first promotion to the position of engineer?

"4 (a) How many engineers are now set back firing on each seniority district, or division, on each of the roads represented by you?

"(b) How many engineers are now on the extra lists on the same seniority districts, or divisions, on each of the railroads represented by you?

"5. (a) How many firemen are now on the firemen's extra list on each seniority district, or division, on each of the lines represented by you?

"(b) How many firemen have been laid off on account of the present depression in business on each seniority district, or division, on each of the railroads represented by you?

"6. Please furnish us with a statement of the earnings (by months) of engineers who have been promoted or hired since January 1, 1912.

"7. Please furnish a statement of the earnings (by months) of all engineers who have been hired since January 1, 1912.

"8. Please furnish a statement of the earnings (by months) of all firemen who have been hired since January 1, 1912.

"We would like to ask that you advise us as soon as possible if you will be able to furnish us this information, and how soon we may expect same."

Mr. Keefe, in pursuance of this letter, when a form was prepared to be uniform to all of the railroads, was it submitted to the gentlemen who asked for this information?

Mr. Keefe: Yes, sir.

Mr. Sheean: That blank form was submitted to them before it went out?

Mr. Keefe: Yes, sir.

Mr. Sheean: Did the form in which the request went out to the different railroads receive their approval as calling for all of the information which they asked for in the letter?

Mr. Keefe: Yes, sir. It was first submitted to them for approval before it was sent out to the railroads; and we have their approval to the form before we submitted it to the railroads.

Mr. Carter: Will you kindly explain, Mr. Keefe, why these letters were interchanged? Will you explain that? Mr. Stone and myself endeavored to secure this information from our men and you issued a certain circular—will you read the circular,—1036, on page 33.

Mr. Keefe: This Association of Western Railroads circular No. 1033, is dated Chicago, March 3, 1914, and was the enclosure referred to in the letter of Mr. Tinsman to Messrs. Stone and Carter, dated March 3. It is as follows:

"Dear Sir: Attached hereto you will find a copy of a circular issued by the Western Joint Board of the Brotherhood of Locomotive Engineers and the Brotherhood of Locomotive Firemen and Enginemen, calling for certain information from their members and for information to be secured from the proper railway official.

The Conference Committee of Managers having in hand the negotiations with the Committees representing the two orders named have given consideration to this circular, and feel that any information which the Committee representing the B. of L. E. and the B. of L. F. & E. desire from the railroads should be secured through this Committee. Will you, therefore, please refer any requests for information which are made upon you by your committeemen or others to the Conference Committee? If, before receipt of this communication, you have furnished any information, will you kindly furnish the Conference Committee a copy as early as possible?

"Please acknowledge receipt."

Signed "W. S. Tinsman, Chairman, Conference Committee of Managers."

Mr. Keefe, I wish to make the statement that we had passed this information, in a circular issued to our own Local Chairman of all divisions and lodges on these same roads, and these Chairmen advised us, in many instances, that the local officials refused to give them this information. Was it because of this circular?

Mr. Keefe: No. This circular was issued as soon as the Conference Committee was aware of the requests made, and they addressed their letter of March 3 to you asking that any information you desired from the railroads be secured through them; and that they would do everything to facilitate your com-

mittee in getting such information as you desired from the railroads.

Mr. Carter: But, Mr. Keefe, do you not know that that circular was issued to prevent local officials from giving our local men access to the records of the company?

Mr. Keefe: The letter of March 3 shows why the circular was issued. There was no desire to hide the situation at all. You were furnished a copy of the letter at the time it was written and asked that any informatioin that you wanted from the railroads you should secure through the Conference Committee of Managers, and you were told that the Conference Committee of Managers would undertake to supply you any and all information you asked for; and in pursuance of that arrangement they did secure from the railroads the information shown on Forms 15, 16, 17 and 18, after those forms had been submitted to yourself and Mr. Stone, and their approval, placed thereupon before they were sent out to the railroads.

Mr. Carter: But the circular did prevent our men, locally, from getting any information from the local officials or the local records, did it not?

Mr. Keefe: I presume it had that effect, yes, sir.

Mr. Carter: Was not that the effect intended?

Mr. Keefe: It plainly says that.

Mr. Carter: Now, after having refused the local officials or, rather, refused the right of the local officials to communicate this information to the men in the different seniority districts, and having offered so generously to furnish us all the information we desired, don't you think it would have been an act of kindness on your part, if you had called our attention to the fact that where you gave a list of promoted engineers and their earnings, that they earned other money?

Mr. Keefe: It would have been entirely presumptuous on our part to have done so. I want to say this, that in connection with the refusal of our local people to give your local people any information, they simply notified them to take up with the conference committee, and obtain from that source, any information they desired; not that they absolutely refused to give it to them, but they referred them to the Conference Committee to obtain the data they wanted to get, and at no time, to my knowledge, has the Conference Committee of Managers ever

declined to give you any information which you or your committee desired.

Mr. Stone: Now, Mr. Chairman, if I might say just a word here—because this is a very important matter—as spokesman for the two committees, Mr. Carter and myself held thirty-five conferences with the Conference Committee of Managers, of which Mr. Trenholm is chairman. I think every detail of this entire controversy was discussed from every point of view. When they issued their letter of March 3rd, they shut off from us all sources of local information. Now, they would lead this Board to believe that they did not know what we wanted. I want to read you what that circular was that they had a copy of on March 3rd, and to show to you that had we been given the information that was requested therein, we should have had all the information, both for Engineers and Firemen.

"WESTERN JOINT CONCERTED WAGE MOVEMENT,

1913-1914.

B. of L. E. and B. of L. F. & E.

Loss of Earnings Because of Depression in Business.

(1) Have the earnings of engineers and firemen decreased because of recent depression in the business of the railway by which you are employed? Ans.....

If your answer is "Yes," explain, in detail, as follows:

(a) How many engineers were on the engineer's list on your seniority district on February 1, 1913?.....

(b) How many engineers were on the engineer's list on your seniority district on February 1, 1914?.....

(c) How many firemen were on the firemen's list on your seniority district on February 1, 1913?.....

(d) How many firemen were on the firemen's list on your seniority district on February 1, 1914?.....

(2) (a) How many years of seniority AS AN ENGINEER has the OLDEST FIREMAN now firing on your seniority district? (State his name and when he was first promoted to the position of engineer.).....

.....

.....

.....

(b) What proportion of his time has he been employed as

engineer and what proportion as fireman since his first promotion to the position of engineer?.....

.....

.....

(c) How many engineers are now set back firing on your seniority district?.....

(3) How many engineers are now on the engineers' extra list on your seniority district?.....

(4) How many firemen are now on the firemen's extra list on your seniority district?.....

(5) How many firemen have been laid off account of the present depression in business on your seniority district?.....

....."

Now, I ask your particular attention to the next four questions:

(6) Please make formal request on the proper railway official for a statement of the earnings (by months) of ALL ENGINEERS who have been promoted or hired since January 1, 1912, and SEND COMPLETE STATEMENT to P. O. Box 740, Chicago, Ill.

(State hereon if statement has been sent.).....

.....

(7) Please make formal request on the proper railway official for a statement of the earnings by months of ALL ENGINEERS who have been hired since January 1, 1912, and SEND COMPLETE STATEMENT TO P. O. Box 740, Chicago, Ill. (State hereon if statement has been sent.).....

.....

(8) Please make formal request on the proper railway official for a statement of the earnings (by months) of ALL FIREMEN who have been hired since January 1, 1912, and SEND COMPLETE STATEMENT to P. O. Box 740, Chicago, Ill. (State hereon if statement has been sent.).....

.....

(9) If officials refuse this information, so state hereon."

.....

And then the blank form to be filled out, who gave the information.

It must be evident from that blank itself that the railroads were fully advised as to the exact information which we desired to obtain. In addition to that, it had been discussed time and again in regard to the low earning of the men on extra board, and regarding the men who were fluctuating back and forth between firing and running. And, while I realize we did not get the information we thought we had, yet I will say to you frankly it does not surprise me very much, because it is the way it generally works out in these arbitration meetings.

Mr. Shea: Mr. Stone, I noticed in reading the letter addressed to Mr. Tinsman, Chairman of the Association of Western Railways, over your and Mr. Carter's signatures, under date of March 8, 1914, in making the request I noticed in (b) you state:

"What proportion of his time has he been employed as an engineer and what proportion as a fireman, since his first promotion to the position of engineer."

Would that not apply to engineers that were promoted since 1912? If he was promoted since 1912, did not that request include his wages as an engineer and as a fireman earned since his first promotion?

Mr. Stone: That was our understanding, Mr. Shea.

Mr. Shea: The way I construe it, it is very plain, because I don't see why it is susceptible of more than one interpretation.

Mr. Keefe: You received the information called for in that request in precisely the same way it was asked for.

The Chairman: Was the request for information as to the amounts earned by engineers as such?

Mr. Carter: Yes.

The Chairman: Or was it simply the amount earned by engineers for a certain time?

Mr. Keefe: I have sent for a copy of the blanks asking for the information.

The Chairman: I am speaking of the request of Mr. Carter.

Mr. Carter: In the form prepared after all of this controversy we asked first "What are the earnings of promoted engineers as engineers." We asked for that information.

The Chairman: If you limited it to engineers earning as engineers, of course—

Mr. Sheean: They placed that limitation upon it. I want that understood.

The Chairman: Otherwise, if you had asked for their earnings, then I would say they were entitled to everything they earned during the month.

Mr. Sheean: We have not any suggestion other than your Honor's, but the form as to just what they wanted was submitted to them, and the form which they said furnished the information which they wanted.

Mr. Nagel: Are we to understand that the form which was approved and sent out did not follow the letter of March 8th, 1914, addressed to Mr. Tinsman?

Mr. Sheean: I will have the form in just a minute.

Mr. Nagel: May I ask one more question. To whom was the Chairman's letter addressed, this letter of March 3, 1914, this circular letter advising you that all communications be had with the Committee of Managers?

Mr. Sheean: This 1036?

The Chairman: Yes.

Mr. Sheean: That was addressed to the various railroads represented, and the copy of it was enclosed in the letter to Messrs. Stone and Carter on that day. This follows the letter of March 3rd addressed to Messrs. Stone and Carter, encloses copy of the circular letter issued on that day.

Mr. Nagel: That was addressed to the railroad officials?

Mr. Sheean: To the railroad officials.

Mr. Park: Mr. Keefe, I understand, at that time you were accumulating a great deal of statistical information in your General Managers' Committee.

Mr. Keefe: Yes, sir.

Mr. Park: And there might be some information that would be asked for from the railroads which you already had accumulated from the railroads.

Mr. Keefe: Yes, sir; and we wanted to make certain to see if we could not dovetail the two requests together, so as to minimize the work on the division officers. They asked for information and we asked for practically that same information, in a little different form.

Mr. Park: Is it also a fact that the usual manner in which

information is obtained from railroads, is from the general manager and not from local officials?

Mr. Keefe: That should be the practice, yes.

Mr. Park: The information is concentrated in one particular office.

Mr. Byram: Mr. Keefe, if I understand it, the object of this exhibit is merely to correct an error.

Mr. Keefe: That is all.

Mr. Byram: And without any question as to how it came to be made, or for what reason, and no imputation is implied on either side.

Mr. Keefe: No, sir.

Mr. Byram: Merely a desire on the part of your committee to correct an error.

Mr. Keefe: Yes, sir, and to show the actual facts, so far as total earnings. . .

Mr. Carter: Mr. Keefe, so far as the earnings of hired engineers and firemen are concerned, you have not found any serious error in that, have you?

Mr. Keefe: I have made no check of it, Mr. Carter.

Mr. Shea: Mr. Stone, may I ask you a question?

Mr. Stone: Surely.

Mr. Shea: What did you mean in your letter addressed to Mr. Tinsman, under date of March 8th? What did you mean in paragraph (b), in which it is stated: "What proportion of his time has he been employed as an engineer, and what proportion as a fireman, since his first promotion to the position of engineer?"

Mr. Stone: I suppose what we were trying to arrive at,—by reading it here now, after it has got cold, it don't seem as plain as it might be, but we were trying to find out what time he had been employed. What we were trying to show was the earning capacity of the man, but it is very evident they simply took it for the time.

Mr. Sheean: The forms 15 and 16, I see—pardon me. Am I interrupting?

Mr. Shea: Yes; I did not get that straight in my mind yet.

Mr. Sheean: I thought I might aid. I note in Mr. Carter's Exhibit 8, that he set out the form that was set out—the forms 15 and 16, and we are waiting to get that blank form, and the

heading on that has, on page 6, form 16, "Illinois Central Railroad Company. Wages Earned as Engineers, by Engineers Who Have Been Promoted Since January 1st, 1912, on Seniority District, Illinois Division." This is the form 16.

Mr. Byram: Well, Mr. Carter, there does not seem to be any doubt about what that exhibit shows. It is there. It shows that this purports to be—that Exhibit purports to be the earnings of these men, as engineers. Nothing doubtful about that, is there?

Mr. Carter: There is no question but what there was an error made. If you will read the letter to our men, and the circular forms—the letter to Mr. Tinsman, "We are particularly anxious to find the proportionate time of these men run between engineer and firemen;" but in the last letter we omitted to state that, and Exhibit 8 says this: "The matter was further discussed at conferences between the Managers' Committee and the Committee representing the Engineers, Firemen and Hostlers with the result that the Managers' Committee sent to the Management of Railroads affected printed question forms numbered 15, 16, 17 and 18, which forms were completed and delivered to the Enginemen's Committee for the purpose of explaining the nature of these forms and questions, one of each is reproduced, as completed, as follows:"

The error was that after having asked our men to supply this information, being refused by the local officials, then having asked Mr. Tinsman to supply this information, when we actually submitted data on which to prepare the forms, we omitted that question.

The Chairman: Mr. Keefe, when this request was made, did you have within your knowledge at that time the information which you now incorporate?

Mr. Keefe: No, we obtained the information from the railroads afterwards, as to their earnings as firemen as well as engineers.

The Chairman: In response, then, you got not only the earnings of the men, while working as engineers, but you likewise got the earnings while working as firemen?

Mr. Keefe: Yes, sir.

The Chairman: And you did not communicate that?

Mr. Keefe: I did not furnish any information to Messrs. Stone and Carter, except what they called for in the blanks.

The Chairman: Did it or did it not occur to you at the time, that there might be material information they should have, in order to be not led astray in presenting the matter to the Board?

Mr. Keefe: I did not have the slightest knowledge of the purpose for which they were to use the information, Mr. Chairman. They asked for the data.

The Chairman: You know this is an arbitration, and along broader lines than we usually proceed in courts, and our purpose is to get all the facts. Of course, I can see how the mistake occurred, and I do not see that anybody is hurt, particularly, except that Mr. Carter is misled in making one exhibit, which, perhaps, he would not have otherwise made. At least, he would have made it more complete.

Mr. Keefe: Our purpose in supplying this is only to correct the missing information that was not supplied in the first exhibit, without any criticism or blame attached to the original exhibit No. 8. Simply to bring it up to the accurate situation, to show what the earnings, not only as engineers were, but also what were the earnings of the same men as firemen.

Mr. Byram: Mr. Keefe, did you have the information that we now supply, for the same months? You answered the Chairman that you had this information subsequently, and you did not communicate it. Now, did you have the earnings for February, 1913, for June, 1913, for October, 1913, for February, 1914, for all of these men?

Mr. Keefe: We obtained the information of their earnings, for these particular classes of men, for the entire period of time, from January, 1912, to February, 1914, inclusive, which corresponded with the same information that they asked for, as wages as engineers. We asked for the same period of time and for the same months, the wages made by those same men as firemen.

Mr. Carter: There are just one or two more questions. Will you turn to the third sheet, the second long sheet? Will you please read the total of the average earnings for February, 1913?

Mr. Keefe: As engineers? The total as engineers, Mr. Carter?

Mr. Carter: It is the second page.

Mr. Keefe: I know, pages 22 and 23.

Mr. Carter: It says, "Average Earnings per Month." Then there is a total down there, $108.21. Will you plese read those now, the footings for each year?

Mr. Keefe: February, 1913, average earnings per month, $108.21.

Mr. Carter: Yes. Now the next month.

Mr. Keefe: $108.88; is that it?

Mr. Carter: Yes, sir; and October.

Mr. Keefe: $122.21.

Mr. Carter: And the following February:

Mr. Keefe: $103.50.

Mr. Carter: About what is the percentage increase of October over any one of the other three months? About 20 per cent, just for a guess?

Mr. Keefe: 13 per cent.

Mr. Carter: You mean $22 is an increase of 13 per cent of $108?

Mr. Keefe: $122 is 13 per cent greater than $108. That is the increase amounts to 13 per cent.

Mr. Carter: Well, how about the $103, the following February, the fourth month later?

Mr. Keefe: A little less than 18 per cent; a little over 17 per cent.

Mr. Carter: Would not this showing of yours here, communicate the information to us, that even counting the winter months, and one month, June, that the earnings for October, 1913, were much greater than any other month?

Mr. Keefe: Not precisely that, in that language, Mr. Carter. It shows for this particular class of employes which is confined strictly to the promoted engineers' class, that their earnings as such in October were respectively $14 more than June or February, 1913, and $18 more than in February, 1914.

Mr. Carter: Well, in June, 1913, after all the years firing and these men were promoted to the position of engineer, and then by promoting them to earn all they could, both as engineers and firemen, the average of all of them was $108.88. Is that true?

Mr. Keefe: For all of the men, for such time of the month

as they may have worked, they received $122, counting every individual.

Mr. Carter: That is in October. I meant June.

Mr. Keefe: June was $108. Counting every man who worked in the month, on the same basis as the man who worked the entire month, and in the details of those I recall there were a number of men who only worked one or two days, emergency service, they were considered of the same standing and effect as a man who worked a full month; particularly the Great Northern you had reference to in your testimony, where there were a large number of those men who worked only one or two days, and they would be taken into consideration in arriving at this average of $108.

Mr. Stone: I would like to ask you one more question, Mr. Keefe. On this first short page here, the first page after the long one, the earning for October, 1913, A. T. & S. F., Eastern Lines, I notice you have a man here in the Chicago Terminal, Mark Wiley, who earned $81.33 as a fireman. Their rate is $2.50 in the yard. That means that he worked 32 days and a half, as a fireman, ten hours a day; and then he made $34.93 as an engineer. Their rate is $4.25. That means he worked 8¼ days as an engineer. If that computation is correct, he worked a little over forty days in the month, and he received the magnificent sum of $116.26.

Mr. Keefe: I have not made any computation. I cannot locate right at this second the details of his October payroll.

Mr. Stone: All right. We will pass it. That is all.

Mr. Sheean: If the Board please, I think I ought to clear up what seems to be not entirely clear in the minds of the Board, and that is that at the time of this correspondence, there was no agreement to arbitrate, or any suggestion of arbitration, or anything other than to furnish all such information as was desired by either side. Now, I thought that either the Board misapprehended the purpose and object of these exhibits, or else was a little unmindful of the statement of Mr. Carter, at the time of the presentation of Exhibit No. 8. At that time, if I remember it correctly, and I have just been refreshing my recollection, I tried to ascertain from him whether, in fact, it was the purpose of this exhibit to convey the impression that that was all of their earnings, and he disclaimed that

it was any such intention, and we, your Honors, not criticising in any manner his method or manner of the compilation, but disabusing the minds of the Board of the thought, or idea, or suggestion that he was misled, have furnished the very information which we thought essential to a full and complete picture; and I find upon reference to the record that Mr. Carter, at no time, was misled into the idea that this covered all their earnings, because, turning to page 666 of the record, there appeared a little debate between Mr. Carter and myself.

"Mr. Sheean: Now, Mr. Carter, if in the month of October, 1912, Mr. L. R. Proudfit, shown as earning $4.40 as engineer, also earned the sum of $117.51 as fireman, do you think that your average in which you carry out his wage as $4.40, is a fair average?

"Mr. Carter: Absolutely fair, because if you will read the heading and read the introductory, you will see that the only purpose has been to show the earnings as engineers. Now, if it was not my purpose to put a danger signal there against anybody misunderstanding its purport, I would not have said 'Wages earned as engineers, by engineers who have been promoted.' I think that the thing itself explains why it does not show all the earnings."

And again, at page 668, Mr. Carter says:

"I hope that you will not convince the Board that I am making deductions that I am trying to deny. I am telling you that the purpose of this table was to show the wages earned as engineers, by engineers, who have been promoted. Now, if it was my purpose to convey the idea that that is all that they earned, I would not have said, 'Wages Earned by Engineers, by Engineers.'"

And, to clear up in the minds of the Board the thought or idea that at any time there was any misleading, or misunderstanding, or endeavor to conceal or to introduce this by way of criticism, or upset something that we had furnished, I want to make clear that at the very outset we tried to elicit from Mr. Carter that showing only the engineers, as engineers, by engineers, did not give a full and complete picture, and taking his own exhibit, in his own method, we have now simply offered the entire picture—the entire earnings for engineers and firemen.

Now, I still think that it would be presumptuous on the part of any railroad company to decline to make the separation in the way he said that he wanted it, and in the way in which he said upon the stand he wanted it presented, but we simply show in connection with it, the additional information, and I want to assure the Board it was not with the purpose or thought of criticising anybody in that connection, but simply furnishing the whole picture. Now, we have before the Board the entire picture at this time, and if it still be sound to differentiate in the way they ask to have it differentiated, that can be debated.

Mr. Carter: Mr. Chairman, I think that was brought up in the examination of me as a witness. It was also brought out at that time that I was astonished that the Illinois Central Railroad would use engineers and firemen both, at the same time; something that I did not know was done. I knew that some roads used men in emergency cases.

I have not the proceedings here, but I think if counsel for the railroads could go on and read, where I said that if the men on the Illinois Central were doing this, they were doing something grossly unjust to the firemen; if these men, as firemen, were promoted to the position of engineer, they were assigned to the extra list, and only run an engine and did not do any firing. I think that also will be shown.

Mr. Sheean: Yes.

Mr. Carter: So far as this exhibit is concerned, yes, and it seems to me that I have learned a great deal. I thought that when a fireman was promoted to the position of engineer, he was assigned to the engineers' extra list, and his earnings were entirely as of an engineer until, because of a depression in business he was demoted. Now, I learn that that is not the practice, and, to that extent, why, I must confess that I am very much confused.

Mr. Sheean: Well, the whole point, Mr. Carter, is that you wanted the information to show what was earned as engineer, by engineers.

Mr. Carter: I will state—

Mr. Sheean: And we got it for you.

Mr. Carter: I thought that was all they earned. I know when a man is demoted, he goes back to firing, but I did not know that the passenger engines were fired by the extra engi-

neers—men on the engineers' list; neither did I know that the extra running was done by the passenger firemen. Now, in the case of Proudfit, I talked to him personally. He was away down the list somewhere as a freight fireman, and when I learned that the Illinois Central, on its Chicago division, was using even freight firemen to do their engine running, why, I was all at sea.

Mr. Sheean: But, Mr. Carter, you specifically say that this is absolutely fair, because if you will read the heading, and read the introductory, you will see that the only purpose has been to show the earnings, as engineers.

Mr. Carter: There is no question of that.

Mr. Sheean: No. I rather thought there was some confusion here. You wanted to show it, as engineers, and we obtained it for you, as engineers, and in connection with that, not criticising your deductions or the way you got up your figures, we, thinking it proper that the Board should have the entire earnings, introduced the rest of it, simply in connection with your form.

Mr. Carter: Our purpose was to try and show what a promoted engineer would earn, as an engineer. We did not know, as we know now, that he was more of a fireman than he was an engineer, and I want to say right here, it is grossly unjust to firemen, that engineers should use the passenger jobs as a basis of operation.

Mr. Nagel: Mr. Carter, then question (b), in your original letter to Mr. Tinsman, did not contemplate the appointment of engineers as firemen, did it?

Mr. Carter: We certainly asked for it.

Mr. Nagel: If you asked for it, then you must have known it was possible to have the double appointment.

Mr. Carter: In the beginning we intended to show it.

Mr. Nagel: Then you were aware of the fact that they might be employed in both capacities.

Mr. Carter: Yes, sir.

Mr. Nagel: And, to get their entire earnings, you would have to know what they received in each capacity.

Mr. Carter: But we did not think they would do it at the same time.

Mr. Nagel: I know; but I do not understand how you

could be surprised to find engineers employed in that way, if you asked for a report to show how often they were employed.

Mr. Carter: While this is foreign to the case, I might say there is an agreement between the two organizations, that so far as they had influence, firemen will not do this work, as is shown in the exhibit, but will maintain extra engineers' lists; and so far as these two Brotherhoods are concerned, this practice is diametrically opposite to what is agreed to between these two organizations.

Mr. Nagel: I know; but I do not care about the agreement so much now. You say here, "What proportion of his time has he been employed as an engineer, and what proportion as a firemen, since his first promotion to the position of engineer." Does not that question contemplate your knowledge of the fact that they did work in both capacities?

Mr. Carter: No, sir; you misunderstand it. Business picks up and a fireman is promoted to the position of an engineer. We understood that when he was promoted to the position of engineer, he did not do anything else but run an engine, until business fell off, then he was demoted back to fireman; but it appears in this exhibit that they are neither extra engineers or firemen; they are both. That is where we misunderstood the case.

Mr. Nagel: Then do you wish to be understood as saying that you think the information given you misled you at the time?

Mr. Carter: Yes, sir. I thought that when they were promoted they were engineers, and they remained engineers until they were demoted.

Mr. Nagel: You thought that was really all the earnings of these particular men?

Mr. Carter: Yes, sir.

Mr. Nagel: And was not your familiarity with your force such as to apprise you, on an examination of those schedules that that could not be the entire earnings of those particular men?

Mr. Carter: I do not understand the question, Mr. Nagel.

Mr. Nagel: Was not your familiarity with your force and your membership, such as to apprise you, upon an examination

of these schedules, that they could not show all the earnings, in both capacities, of these particular men?

Mr. Carter: I say that the amounts shown there are in keeping with what our men complained they were earning on the extra engineers' list. Our men complain that they were not making a living on these extra engineers' lists.

Mr. Nagel: And you concluded that that constituted the entire earnings of these particular men?

Mr. Carter: So long as they were engineers.

Mr. Nagel: Well—

Mr. Carter: I think you do not understand the practice, Mr. Nagel—

Mr. Nagel: I am trying to.

Mr. Carter: Understand, Mr. Nagel, in practice, and in accordance with practically all wage schedules, when they need an engineer they promote a fireman. That fireman then becomes an engineer, and he is assigned to the extra engineers' list, and he is never supposed to fire another engine until such time as, because of depression in business, the list is cut, as we say, and he goes back as a fireman. It is in violation of our schedules for him to do both at the same time.

Mr. Park: The schedules of the railroads?

Mr. Carter: Our agreements between ourselves.

Mr. Park: Mr. Keefe, do not these exhibits show that, on all the railroads, there are engineers and firemen, that is, employes, who have the dual capacity in one month?

Mr. Keefe: Certainly.

Mr. Park: All the way through, on every railroad?

Mr. Keefe: Every railroad that we have the details of shows that that was so.

Mr. Park: It is a common and ordinary practice?

Mr. Keefe: Yes; and, as a matter of fact, when a fireman was promoted or qualified as an engineer, he is very frequently taken from firing service and put on engine service in an emergency, temporary service.

Mr. Carter: I want to withdraw an expression of sympathy that I first made when I was a witness. I really believed that engineers on the extra list did go through a starving period. I understand, now, that they do not; that when they are not running they can fire. Is that right?

Mr. Keefe: I say that they do fire. They do make earnings both as engineer and as fireman, as indicated by the payrolls and statements submitted on this Exhibit No. 31; and that it is not an uncommon practice for promoted engineers to earn wages both as fireman and engineer in the same month.

Mr. Carter: Mr. Chairman, I want to say to you that I have learned something in this room. I thought that when a man was promoted to a position as engineer he remained an engineer until he was demoted. I thought when he was demoted he remained a fireman until he was again promoted, except in what are known as emergency cases, where they have to use a man in an emergency. I want to say that I am not half as sympathetic to the man if he is privileged to do both kinds of work at the same time.

Mr. Sheean: Well, this gives the whole picture, Mr. Keefe?

Mr. Keefe: Yes.

Mr. Stone: You are sure you have given all the information now that you know regarding these men, are you? There is nothing more held back?

Mr. Keefe: I tell you that it did not include all the earnings yet. There are some earnings as hostlers not shown in these.

Mr. Stone: Shall we have an exhibit later showing that?

Mr. Keefe: I don't know of any move made to obtain those earnings, Mr. Stone.

Mr. Sheean: Mr. Keefe, have you caused certain information to be assembled and put in concrete form as Exhibit 32?

Mr. Keefe: Yes.

Mr. Sheean: While that is being passed around, Mr. Keefe, Exhibit 32 consists of two sheets, and is a statement showing the length of time, pool freight, unassigned or chain gang engine crews were held away from home terminals in the month of October, 1913, on Sheet 1.

Mr. Keefe: Yes.

Mr. Sheean: On sheet 2, the same information for June, 1914?

Mr. Keefe: Yes.

(The document, so offered and identified, was received in evidence and thereupon marked "Railroads' Exhibit No. 32, February 3, 1915.")

Mr. Sheean: That is obtained from the roads severally?

Mr. Keefe: Yes.

Mr. Sheean: And beginning with one hour, the columns headed from 1 to 100, give the number of hours held away from home terminals?

Mr. Keefe: Yes.

Mr. Sheean: On each of the roads in this month.

Mr. Stone: Might I ask a question there, Mr. Sheean? Is that after his legal rest period is up?

Mr. Sheean: No, this is the entire time.

Mr. Stone: This includes his legal rest period, under the law, in all cases?

Mr. Sheean: That is my understanding.

Mr. Keefe: That is from the time he arrives at the away from home terminal until he left there.

Mr. Byram: Is that the time he left to the time he resumed duty again?

Mr. Keefe: The time he went on duty again. Not necessarily the time he left, but the time he resumed duty.

Mr. Burgess: Mr. Sheean, help us out a little bit; that top column, does that signify the hours?

Mr. Sheean: Hours, running 1 to 100.

Mr. Burgess: Yes.

Mr. Sheean: And then the number—is this the number of crews?

Mr. Keefe: Engine crews, yes.

Mr. Sheean: The number of engine crews, under each one of the hours, on each one of the roads. Now, Mr. Keefe, that has been obtained simply by the information given you by the different roads?

Mr. Keefe: Yes.

Mr. Sheean: It shows in some cases an extreme length of time, the time men ought to be compensated for.

The Chairman: What is that first column opposite the Atchison, Topeka & Santa Fe?

Mr. Sheean: I will just run through that. Atchison, Topeka & Santa Fe, 54 engine crews in the month of October.

The Chairman: That means the number of men necessary to man an engine.

Mr. Sheean: Yes. There would be an engineer and fire-

man, yes, sir, two men. And 54 engine crews came right back without any delay, or within one hour.

38 crews were two hours at the away from home terminal.

37 in three hours.

33 in four hours.

43 in five hours.

And so on in an ascent up to the highest one, thirty-two hours, there were two crews.

Now, Mr. Keefe, this Exhibit, sheets 1 and 2, comprises simply unassigned, pool or chain gang service.

Mr. Keefe: Yes, sir.

Mr. Sheean: Under the proposal here under consideration, there is no limitation as to unassigned service but even on assigned runs and passenger service, if you please, where the lay-over was more than a certain length of time, there is provision for paying for away from home terminal.

Mr. Keefe: It is my understanding that the engineers' and firemen's propositions apply to the assigned as well as to the unassigned service, and make no exception for any emergencies, of any character whatever.

Mr. Sheean: Now, taking the territory as a whole, Mr. Keefe, and you have the totals on the last line at the bottom of the page.

Mr. Keefe: Yes.

Mr. Sheean: The largest single item there seems to be 10 hours, 8,085. Is that 10 hours, or 11?

Mr. Keefe: 9 hours. There were 8,085 crews that were held at away from home terminals 9 hours.

Mr. Sheean: And then the heavy portion of it is in between that 10 hours and—

Mr. Keefe: Between 10 and 15 hours was the heavy part.

Mr. Sheean: And in this through or unassigned freight service, under the Hours of Service Law, there must be at least eight, and probably ten hours given for rest at the terminal?

Mr. Keefe: Yes, I understand the provisions are that—

Mr. Sheean: Except upon a short run?

Mr. Keefe: That the legal requirements are at least eight, and, more generally, ten hours are required for the legal amount of rest at the terminals. Of course, the men themselves book for more rest than that.

Mr. Sheean: Now, the heaviest portion of the held away is from 10 up to 20 or 24?

Mr. Keefe: Yes.

Mr. Sheean: And then the isolated scattered cases down, some of them running—the highest one seems to be 100 hours.

Mr. Keefe: Yes.

Mr. Sheean: One single case?

Mr. Keefe: Yes.

Mr. Sheean: What road is that?

Mr. Keefe: It is the Wyoming & Northwestern, as I gather it. Yes, the Wyoming & Northwestern had one case of 100, one case of 84 and one case of 80. They seem to have the three longest.

Mr. Sheean: Now, Sheet No. 2 has the same information for the month of June, 1914?

Mr. Keefe: Yes.

Mr. Sheean: Carried out by roads in the same way, and showing on the bottom line where the heaviest or the greatest number of crews now are released?

Mr. Keefe: Yes. 9 hours there also. 5,192, 9 hours.

Mr. Sheean: And running from 9 up to 24, again, covering the greater part of the service?

Mr. Keefe: Yes.

Mr. Sheean: After 30 hours, both on this and on the other exhibit, the numbers gradually dropping down to the vanishing point?

Mr. Keefe: Yes.

Mr. Sheean: Anything further, Mr. Keefe, that should be explained as to how this information was obtained?

Mr. Keefe: No.

Mr. Sheean: You may cross-examine, Mr .Stone.

RE-CROSS EXAMINATION.

Mr. Stone: Did I understand you to say, Mr. Keefe, that the rest period was 8 and 10 hours at a terminal, and crews always took that before starting back except on short runs?

Mr. Keefe: No, I said that is usually the legal amount provided for rest.

Mr. Stone: You wouldn't start a crew out of a terminal

unless you were sure they had sufficient time to reach the other terminal before the law period was up, would you?

Mr. Keefe: That is prudent operation, to have that in mind always.

Mr. Stone: Is it not a fact that nearly all of the laws require a man to take legal rest when he arrives at a terminal, so he can give the full quota of hours?

Mr. Keefe: I think that is proper operation, yes.

Mr. Stone: Are we to understand that all those who left the terminal inside of 10 hours were short turn-around runs?

Mr. Keefe: They were crews that we returned back from their away from home terminal within the time, within the hours shown here. I don't know whether they were short runs or long runs.

Mr. Stone: Probably fortunate to catch a meat train or a stock train or a high class perishable freight of some kind that is going over the road at high speed and could probably get back within the 16 hours, is it not?

Mr. Keefe: That is not uncommon operation, Mr. Stone.

Mr. Stone: This is October, 1914?

Mr. Keefe: October, 1913.

Mr. Sheean: June, 1914?

Mr. Keefe: 1914.

Mr. Stone: Is there any improvement in June, 1914, when we had the period of depression, over October, 1913, for the percentage of trains run?

Mr. Keefe: Do you mean were they held at away from home terminals a greater length of time than they were in October?

Mr. Stone: A less length of time. Any improvement in being held away from home terminals in June, 1914, over October, 1913, for the percentage of trains run?

Mr. Keefe: No, I think the statement shows that in the month of June the crews were held at away from home terminals longer than they were in October. There is a greater number seemed to be a little bit longer at their away from home terminals in June, than they did in October.

Mr. Stone: Then it is true that in periods of depression

they hold crews longer at away from home terminals for tonnage purposes?

Mr. Keefe: I do not know for what purpose they hold these crews there. To attempt to get the details as to why all those crews were held would be very difficult and would require very voluminous information.

Mr. Stone: Then it is true, according to your own showing, that in times of depression men earn not only less money but they are also held away from home longer in times of depression and incur heavier expense?

Mr. Keefe: I have not made any statements as to their earnings in June being less than they were in October. It is a fact that they are longer away from home terminals in June than they were in October.

Mr. Stone: Being away from home terminals means heavier expense, does it not?

Mr. Keefe: It depends entirely upon the additional length of time that they are away from home terminals.

Mr. Stone: Do you mean to leave the impression, by your last answer, that the crews earned as much in June, 1914, as they did in October, 1913?

Mr. Keefe: In what class of service?

Mr. Stone: I am talking about this exhibit right here.

Mr. Keefe: This refers to the pool freight in assigned or chain gang engine crews.

Mr. Stone: Yes. Did engine crews in assigned or chain gang service earn less in June, 1914, than they did in October, 1913?

Mr. Keefe: I don't know. I have not prepared any figures as to what their earnings were in June, Mr. Stone.

Mr. Stone: You do know there was a period of depression on in June, 1914, do you not?

Mr. Keefe: It shows there were a less number of crews. These statements here show that—that there was a less number of crews operating.

Mr. Stone: It was almost cut in half, was it not—about 60 per cent?

Mr. Keefe: No, there were 72,000 crews in October, and 49,194 in June—about 70 per cent.

Mr. Stone: That is all.

RE-DIRECT EXAMINATION.

Mr. Sheean: I think Exhibit No. 33 was compiled at the suggestion of someone since this hearing has begun, and assembles, for all of the lines, an age limit for employment of engineers and firemen, in tabulated form?

Mr. Keefe: Yes; as I recall it, Mr. Stone asked either yourself or the Committee to furnish information indicating what was the age limit for employment of engineers and firemen.

Mr. Sheean: And this information, as to both engineers and firemen, has been furnished by the roads severally?

Mr. Keefe: Yes, sir.

Mr. Sheean: And is here put in tabulated form at the suggestion or request of somebody, a party to the Arbitration, who has asked for it?

Mr. Keefe: Yes, sir.

(The document, so offered and identified, was received in evidence and thereupon marked "Railroads' Exhibit No. 33, February 3, 1915.")

Mr. Sheean: That is all for this exhibit, Mr. Keefe.

RE-CROSS EXAMINATION.

Mr. Stone: I notice here the St. Louis & San Francisco, commonly known as the Frisco System, has an age limit of 45 for engineers, while the subsidiary lines of that company show no age limit. That is rather a peculiar condition, is it not?

Mr. Keefe: That was the information that we received from the respective lines, Mr. Stone.

Mr. Stone: I also note, on the Atchison, Topeka & Santa Fe, Prescott & Phoenix Line, there is no age limit, while all the rest of the Santa Fe System does have an age limit.

Mr. Keefe: Yes, sir.

Mr. Stone: How did it happen? Did they overlook it?

Mr. Keefe: I don't know how it is that they have no age limit there. This is the information that we received from the rail lines in response to our request for this information.

Mr. Stone: I notice that you have a footnote down here and a number of stars, which you say denotes inexperience?

Mr. Keefe: Yes.

Mr. Stone: Are we to infer that those that are not starred are all experienced men?

Mr. Keefe: The roads, in reply to the request as to their age limit, gave us the information in the shape that you see it here. They showed their limit for experienced men and for inexperienced men. I do not know what would be the proper inference for those that did not furnish that information.

Mr. Stone: Well, take, for example, the Union Pacific: Do I understand that they will hire engineers that are inexperienced at 35, or promote them at that age, but if he is an experienced man he has to be 45? What do those figures mean that you have there?

Mr. Keefe: That is the age limit for the employment of engineers and firemen. The employment of an engineer by the Union Pacific, over 45 years of age, is not permitted, as I understand this information. In other words, a man to be employed as an engineer has to be 45 years old or less.

Mr. Stone: What does the 35 just above it with the star denote?

Mr. Keefe: That denotes the inexperienced man.

Mr. Stone: They hire him at 35?

Mr. Park: As I understand it, that is—

Mr. Keefe: Where it is not a promoted man, where they hire—

Mr. Park: They would employ an experienced fireman if he was over 35; but they would not—

Mr. Stone: This is engineers that we are talking about now, Mr. Park.

Mr. Keefe: Yes, this is engineers.

Mr. Park: Does the star apply to the firemen or the engineers?

Mr. Stone: Both.

Mr. Sheean: On the Union Pacific, it seems to apply to both engineers and firemen.

Mr. Keefe: Both engineers and firemen. This was compiled in a hurry at your recent request, Mr. Stone.

Mr. Stone: I was wondering if there were two different ages, and if the experienced man had to be the older.

Mr. Keefe: I think the proper thing would be to put on there that it applies to firemen and not to the engineers.

Mr. Stone: Then you employed inexperienced firemen at 35, but an experienced fireman must be 45.

Mr. Keefe: No.

Mr. Stone: He cannot be over 45.

Mr. Keefe: An experienced fireman cannot be over 45.

Mr. Stone: To get a job?

Mr. Keefe: Yes.

Mr. Stone: But an inexperienced man at 35 can get one?

Mr. Keefe: An inexperienced man over 35 cannot be employed; that is the meaning. There is a limit there.

Mr. Stone: Have you any record as to how many firemen have been employed at that age?

Mr. Keefe: We have made no inquiry of that kind.

Mr. Stone: When you come to sum up the whole sheet, it shows that the man who gets by one of these surprise tests will have a hard time finding a job if he is 45?

Mr. Keefe: It depends entirely on what action is taken in getting by the surprise test. If he is so unfortunate and the circumstances are such as to cause his dismissal when he is over 45—

Mr. Stone: If he is over 45, he can go and eat snow balls, by the looks of this first list.

Mr. Keefe: Or else go to those roads having no age limit. There are a number of those having no age limit.

Mr. Stone: And the roads that have no age limit do not have much track, either.

Mr. Burgess: How about the Louisiana & Arkansas?

Mr. Keefe: 60 is the limit there.

Mr. Stone: Well, it is just as wide as some of the rest, if it is not as long.

Mr. Keefe: Mr. Burgess is referring, I guess, to the 60 year age limit on that road.

Mr. Stone: I think it has only got about 60 men. That must be the road about which it is said that if a man is sentenced to the penitentiary and he has worked on this road, they deduct from his sentence the number of years he has worked on the road.

That is all.

RE-DIRECT EXAMINATION.

Mr. Sheean: Mr. Keefe, there have been some suggestions about the relative importance of the month of October, 1913, as compared with other months in the fiscal year. I asked you to obtain the payroll figures for the different months of that fiscal year, so as to show for the roads represented the aggregate payments to engineers and firemen, motormen, motormen's helpers and to hostlers during the whole period of twelve months. Has that been done?

Mr. Keefe: Yes.

Mr. Sheean: And that has been put into this tabulated concrete form marked Exhibit No. 34?

Mr. Keefe: Yes.

(The document, so offered and identified, was received in evidence and thereupon marked "Railroads' Exhibit No. 34, February 3, 1915.")

Mr. Sheean: Mr. Keefe, I notice that the total of $7,223,-018.15 shown as the total payroll in October, 1913, on this Exhibit 34 is slightly different from the total payroll which you show in your earlier Exhibit, Exhibit No. 3?

Mr. Keefe: The amount of the payroll of the engineers and firemen as shown on Exhibit No. 3 is $7,214,320.93, or about $8,000 less than the amount shown here in this total. That is made up, generally speaking, of omitted time that was carried into and shown on the October payroll, but which was not taken into account in the making up of our figures as to the cost of the men's proposal in Exhibit No. 3; the intent being, in preparing our estimate for October, to apply it only against the October transactions and from the most part the overtime that was carried on the October payrolls was disregarded and applied to the actual operations in October.

Mr. Sheean: It was the effort, as you explained, I think, in connection with Exhibit No. 3, carrying out the operations under the proposal, to eliminate all items of omitted time?

Mr. Keefe: As far as possible, yes.

Mr. Sheean: And on Exhibit 3, Sheet No. 1, you show the total payroll for the month as $7,214,320.93?

Mr. Keefe: Yes.

Mr. Sheean: Or some $8,000 less than the aggregate amount shown here?

Mr. Keefe: Yes.

Mr. Sheean: You have explained heretofore some items where omitted time of previous months would creep into the payroll of a succeeding month?

Mr. Keefe: Yes.

Mr. Sheean: I imagine that $8,000 is accounted for in that way?

Mr. Keefe: Yes.

Mr. Sheean: These total figures of the entire months, all these months, for that fiscal year, have been furnished you by the roads severally?

Mr. Keefe: Yes.

Mr. Sheean: That is all.

RE-CROSS EXAMINATION.

Mr. Stone: This Exhibit 34, does corroborate the statements we have repeatedly made that October was the high peak during the fiscal year, and has a tendency, at least, to corroborate our further claim that it is the highest peak in the past five years?

Mr. Keefe: It certainly corroborates your statement that it is the highest peak in the fiscal year ending June 30, 1914. I cannot see what bearing it has for the five years.

Mr. Stone: You do not know whether it is the highest peak in the five years or not?

Mr. Keefe: No, sir. I have made no investigation on this line.

Mr. Stone: But it is the highest point in the last year? There is no question about that any further, is there?

Mr. Keefe: In the fiscal year ending June 30, 1914, there is no question as to the aggregate amount of payrolls of engineers and firemen.

Mr. Stone: That is all.

RE-DIRECT EXAMINATION.

Mr. Sheean: And it shows the total spread of the largest and the smallest, within what limits there is any variation of the payrolls?

Mr. Keefe: Yes, sir.

Mr. Sheean: That is all.

RE-CROSS EXAMINATION.

Mr. Carter: How many engineers and firemen were on your payrolls?

Mr. Keefe: I have not undertaken to ascertain that, other than what it was for the month of October, Mr. Carter, as shown in our Exhibits Nos. 26, 27 and 28.

Mr. Carter: You could not show that by this?

Mr. Keefe: No; not without going through the same processes that we went through in making up our October payroll.

Mr. Carter: It would be very valuable if we had the number of men appearing on the payroll each month, for then we could see what their average earnings were for each month, and I want all the firemen, not only those who were able to work all the time, but I want all the firemen and all the engineers that appeared on the payroll to whom this money was paid, so that we can find out what their average earnings were.

Mr. Keefe: Regardless of the length of time that they were employed as such?

Mr. Carter: Yes, sir.

Mr. Keefe: That will take a considerable amount of time and labor, to get that.

Mr. Carter: It is too late, I suppose, to ask it.

Mr. Keefe: It would be just twelve times this job here (indicating).

Mr. Carter: I do not understand that, Mr. Keefe. Don't they know how many men they have on their payrolls each month? Have they not got that information on hand?

Mr. Keefe: As to the number of names that appear on the payrolls, yes.

Mr. Carter: That is what I meant.

Mr. Keefe: That is an entirely different proposition, as to the number of men; because we found in October that it was not uncommon, in the case of some of these railroads, for men to work on more than one division at a time and to be on the payroll more than once. On my own railroad, I found the names appearing on as high as three different divisions, under our system of seniority rules. In order to bring the earnings of those three names together it would require a very tedious and difficult lot of work, because you have to take every man as his name appears on every one of the divisions.

Mr. Sheean: It would be difficult to bring those three men together, you say?

Mr. Keefe: To bring together all the men that work on more than one division. I did not mean that it would be difficult to bring those three men together, but that it would be difficult to bring together the names of the men that work on more than one division and are shown in more than one place on the pay-roll; and he may also be shown as an engineer and as a fireman on each of the divisions.

Mr. Carter: Do you know whether this has ever been attempted or not, for any year?

Mr. Keefe: To my knowledge it never has.

Mr. Carter: Therefore, there never has been a record of the number of engineers and firemen employed for the different months for a year?

Mr. Keefe: I do not know of any such record, Mr. Carter. If there is, it is beyond my knowledge.

RE-DIRECT EXAMINATION.

Mr. Sheean: You promised to furnish some information here also, did you not, Mr. Keefe?

Mr. Keefe: Yes. Mr. Burgess asked me to give him copies of the laws regarding the burning of weeds, in certain states. Here are copies of the laws of three different states.

Mr. Shea: Is that an exhibit?

Mr. Keefe: Not unless you want to make it one, sir.

RE-CROSS-EXAMINATION.

Mr. Stone: Are we to understand that that comes under the head of labor-saving devices for engineers and firemen?

Mr. Keefe: No, sir. It comes under the head of legislative matters that are shown in Exhibit No. 8—not legislative matters, but orders of municipalities and legislatures affecting railway operations.

Mr. Shea: Does this show the states?

Mr. Keefe: Yes.

Mr. Stone: May I ask another question on the same thing? Is it not a fact that a number of roads do burn all the grass and weeds inside their right of way as a preventive against claims

for fire damages to adjacent properties, and it is a saving to the company to do it?

Mr. Keefe: I have not analyzed these laws, Mr. Stone. These were certain laws with respect to certain classes of weeds —cockle-burs, burdock weeds, thistles, and so forth.

Mr. Shea: And cactus?

The Chairman: Are the railroads required by these laws to burn these weeds, or are they prohibited from burning them —which?

Mr. Keefe: I think they are required to burn them.

The Chairman: They are noxious weeds? As I understand, these are noxious weeds, and the law requires them to be burned to keep them from spreading over the adjacent lands?

Mr. Keefe: That is my general understanding of the laws, yes, sir. I have not read any of the three.

Mr. Carter: Did these labor organizations bring that about?

Mr. Keefe: I do not know that they did, or that they did not. I should think that they did not.

Mr. Carter: I thought maybe they got cockle burs in their hair, or something like that, and wanted to have them burned.

RE-DIRECT EXAMINATION.

Mr. Sheean: I think there is a request made to furnish the various pension systems. Have you also that information to file with the Board?

Mr. Keefe: Yes, sir.

Mr. Sheean: You have made a request of all the railroads to furnish all the information that they had as to pension systems?

Mr. Keefe: Information concerning pension systems, relief departments, and hospital associations, was the request made. We have sent an inquiry to each one of the roads—

Mr. Carter: We did not request that, I think?

Mr. Sheean: Yes; I think Mr. Stone requested it.

Mr. Keefe: That we file that information with the Board.

Mr. Stone: I said it might be well to file that information with the Board. I think that is correct, and I think it will be a very valuable exhibit.

Mr. Sheean: It was impossible to attempt any summary or compilation. We asked for the information which you requested, to be filed with the Board.

Mr. Stone: It will show conclusively, I think, that, in addition to his hard earned money, the man is not allowed to keep it after he does earn it, but has to give some of it up again if he wants work.

Mr. Park: They are not required to contribute to the pension fund.

Mr. Stone: They are not?

Mr. Park: That is an absolute gratuity.

Mr. Stone: Well, they do under this age limit; they will not take a man unless he is of a certain age so that they can get a certain length of service out of him; so that, in one way they contribute.

Mr. Nagel: Are these exhibits?

Mr. Sheean: No, sir; I do not think, Mr. Stone, that we want to encumber the record with them as exhibits.

Mr. Stone: No; but they will be here for the information of the Board.

The Chairman: They will be treated in the same way as other papers have been treated—kept here for the information of those who desire to refer to them.

Mr Sheean: My understanding was that Mr. Stone asked that we get them and file them here with the Board so that they might be accessible. I am frank to say that I do not know what is in them, Mr. Stone.

Mr. Stone: All right.

Mr. Sheean: In compliance with your request they are filed, Mr. Stone.

Mr. Carter: If these exhibits of so-called voluntary relief associations are introduced at this time for any effect it may have on the award, I think we can bring many witnesses here to show that it is not voluntary.

Mr. Nagel: Then I move that they be not received, if they are going to result in bringing many witnesses here.

Mr. Park: I second the motion.

Mr. Stone: I do not think that was the idea at all.

Mr. Sheean: We are filing them at the request of Mr.

Stone, Mr. Carter. They are here for whatever use you want to make of them, pro or con, or in any other way.

Mr. Stone: If you don't want them, I should be glad to have them for my files, because they are valuable.

Mr. Nagel: It is important to know under what circumstances they are offered here. If they are exhibits, I take it you may call witnesses to explain or contradict them or show conditions generally. If they are here merely for information, in an informal way, the situation is different.

Mr. Stone: I do not understand, Mr. Chairman and gentlemen of the Board, that the question of relief associations is before this Board at all. It came up in a discussion among other things as to what railroad men had to contribute to, and I thought it might be well to have the information before the Board. I do not think it should be filed as an exhibit.

The Chairman: It is impracticable to do that, as two copies would be required.

Mr. Stone: But it is here for the information of the Board if any question comes up as to whether or not the men are required to contribute to the fund.

The Chairman: Yes; I think it is well enough to have this information here, so that we can look into it if we want to.

Mr. Carter: The reason I rose was this, that some of the roads have contended that, by the establishment of these relief associations, they have partly compensated the employes for their labor, and I wanted to know if there was anything in the documents that is going to be used by anybody as showing that this increase of wages should not be made because of these relief associations.

The Chairman: As I understand, no such defense as that has been offered. Incidentally, the question came up about these relief associations and the matter was discussed pro and con.

Mr. Stone: I am the guilty party. I read the B. & O. Relief Contract which a man has to sign, and it is compulsory. He has to take it out. He has to stand the increase that they put on from time to time, and I was the one who read it into the record, and requested this information be furnished.

Mr. Carter: The reason I rise, Mr. Chairman, is, this is a burden in many instances and not a part of their compensation.

Mr. Sheean: Mr. Burgess asked of Mr. Bremerman when he was upon the stand, a statement showing the Colorado & Southern actual mileage on the Clear Creek District, in connection with page 156, Exhibit No. 1. I have had that for some days, Mr. Burgess, and it is my fault that it has not been furnished, and I will file a copy for each member of the Board, so that it may be inserted at page 156 of that Exhibit 1. I have a sufficient number of copies here so that there will be one for each member of the Board, and give what remains to the parties in interest.

That, I think, is all that I wish to ask Mr. Keefe. That completes your exhibits, Mr. Keefe?

Mr. Keefe: Yes, sir.

The Chairman: It is so near the hour of adjournment, we will not call another witness this afternoon.

(Whereupon, at 4:55 P. M., February 3, 1915, an adjournment was taken until February 4, 1915, at 10 o'clock A. M.)

IN THE MATTER OF THE
ARBITRATION
between the
WESTERN RAILWAYS
and
BROTHERHOOD OF LOCOMOTIVE ENGINEERS
and
BROTHERHOOD OF LOCOMOTIVE FIREMEN AND ENGINEMEN
under the Act approved July 15, 1913, by agreement dated August 3, 1914.

Chicago, Illinois, February 4, 1915.

Met pursuant to adjournment at 10:08 A. M.
Present: Arbitrators and parties as before.

Mr. Sheean: Mr. Tollerton, will you come forward and be sworn, please?

W. J. TOLLERTON was called as a witness and, having been duly sworn, testified as follows:

DIRECT EXAMINATION.

Mr. Sheean: State your name, please.

Mr. Tollerton: William J. Tollerton.

Mr. Sheean: Where do you live, Mr. Tollerton?

Mr. Tollerton: Chicago.

Mr. Sheean: What is your business?

Mr. Tollerton: General Mechanical Superintendent, Chicago, Rock Island & Pacific Railway.

Mr. Sheean: And what has your experience been, in a general way, in the mechanical department of any railroad or railroads?

Mr. Tollerton: Well, as an officer since 1891, in the mechanical department.

Mr. Sheean: Of what railroad or railroads?

Mr. Tollerton: The Union Pacific for fifteen years; the remainder of the time with the Rock Island.

Mr. Sheean: And before becoming an officer what was your training in a mechanical way?

Mr. Tollerton: Shop and engine service.

Mr. Sheean: For what period of time? When did you start in on that kind of work?

Mr. Tollerton: About 1886.

Mr. Sheean: In the shops?

Mr. Tollerton: Afterwards on the road.

Mr. Sheean: And in your present capacity with the Rock Island, just what are your duties, in a general way?

Mr. Tollerton: I have entire charge of the locomotive and car department; the designing, building and repairing of locomotives and freight and passenger cars.

Mr. Sheean: There was introduced the other day, Mr. Tollerton, as Exhibit 15, by the railroad companies, a summary of the locomotives in service, and also the number equipped with labor saving devices, and the question arose as to the manner in which the devices there enumerated accomplished the result of saving labor. Now, I wish you would explain just what is meant by a brick arch. Brick arch is put under that heading as one of the labor saving devices.

Mr. Tollerton: Well, conservatively, a brick arch will save 10 per cent of fuel.

Mr. Sheean: Now, some members of the Board, I assume, have no intimate knowledge as to just what a brick arch is. In a general way, explain what you mean.

Mr. Tollerton: Brick arches are applied in different ways; some suspended by the side at the firebox; some suspended on water tubes running through the firebox. A brick arch is an arch formed inside the firebox, and put in there to retard the gases within the firebox and aid combustion.

Mr. Sheean: Well, in what manner does this effect this saving of fuel that you speak of?

Mr. Tollerton: Less fuel used per ton mile or per engine mile.

Mr. Sheean: Is that statement the result of your own observation or experience?

Mr. Tollerton: Well, my own observation, and any number

of tests. I have a number of them tabulated here. Do you wish me to read some of them?

Mr. Sheean: Yes, if you please.

Mr. Tollerton: Professor Goss, who is well known in railway mechanical matters, made some tests at Coatesville, Pennsylvania, and I will quote from his tests.

"Dr. Goss, a recognized railroad authority, made these tests at Coatesville. Dr. Goss states that with the addition of an arch, economies in pounds of water evaporated per pounds of coal was 8 per cent with one grade of coal, and with another grade of coal 12 per cent."

From the American Engineer, dated November, 1911, page 435, we take this test:

"From a test on the New York Central Railroad, conducted jointly by a committee representing the American Locomotive Company, the New York Central and the Pennsylvania Railroads, the following results were obtained:

An engine equipped with a high degree of superheat and hand fire and brick arch, an economy for the brick arch of 15.2 per cent was obtained, on the basis of coal fire. That is in the face of an increase of 7 per cent in tonnage. The conclusions of the Committee were as follows:

"Data in reference to the performance with and without brick arches, warrant the conclusion that the application of fire brick to this type of locomotive, using this grade of fuel, may be conservatively stated at 11 per cent."

Another one: "The test in passenger service, Long Island Railroad, for engines with and without brick arch, an economy of 8.9 per cent was obtained. Mr. Folk, superintendent of motive power of the Soo Line, advises that a brick arch will save not less than 10 per cent." Do you desire any more?

Mr. Sheean: No; I just wanted to get a general statement of the general experience, and whether or not this is confirmed by your own observation.

Mr. Tollerton: Absolutely.

Mr. Sheean: Now, to what extent are brick arches being applied in the heavier type of power?

The Chairman: Is there any controversy as to the point that you seek?

Mr. Sheean: I understood from the question asked by Mr.

Stone the other day, when Exhibit 15 was introduced, where we enumerated certain labor saving devices, that he raised the question as to whether or not it did save labor.

The Chairman: All right.

Mr. Park: Do these show a tendency also to decrease the consumption of coal?

Mr. Tollerton: 10 per cent.

Mr. Nagel: Is the general proposition disputed?

Mr. Stone: Are you asking me the question?

Mr. Nagel: Yes.

Mr. Stone: In a general way, we do not dispute the fact that a properly constructed brick arch will, perhaps, show an economy in fuel, but we do think there are other things to be considered. It is much harder on a fireman, because of the intense heat, which burns the face off him and the feet off him, and it is harder on a fireman, because it is heated to an intense heat, white as a piece of chalk, and every time he looks in there it is just like looking into an arc light. It was not the firemen they were thinking of when they put in the brick arch. They were trying to get something to save flues.

Mr. Sheean: Mr. Tollerton, for the reasons you have stated and any other reasons you may give, you classify the brick arch as a labor saving device?

Mr. Tollerton: Absolutely.

Mr. Sheean: Aside from the economy in fuel consumption, less coal to be shoveled by firemen, I think you mentioned also the fact that there was a saving in the amount of water that had to be taken on.

Mr. Tollerton: Of course, the amount of water evaporated is always based on the pounds of coal. Less coal, why, a higher water evaporation all the time.

Mr. Sheean: To what extent are these being installed upon the heavier power?

Mr. Tollerton: Very rapidly in the last few years, all lines recognizing the economy of the device. At the end of 1910 there were about 12,250 arches on 58,000 locomotives, or about 21.6 per cent, while at the end of 1914 there were 24,650 in use, on 64,000 locomotives, or 38.5 per cent. This shows an increase of about 100 per cent in the last few years. Now, I

might add that of those figures, 40 per cent of the total number of engines are in the Western territory, with this device on them.

Mr. Sheean: You also classified in this Exhibit 15, superheaters as a labor saving device?

Mr. Tollerton: Yes.

Mr. Sheean: Will you explain, please, just what a superheater is and why you classify it as a labor saving device?

Mr. Park: Before you answer that question, I would like to know what your experience is as to the effect on the firemen of a brick arch.

Mr. Tollerton: Our experience has been entirely contrary to that stated by Mr. Stone. The fire doors are operated pneumatically and the brick arch does not have the tendency to heat up. While, of course, it is always hot around the fireman's legs, we have never experienced any trouble of that kind.

Mr. Park: This pneumatic door is operated by the foot, is it?

Mr. Tollerton: It is operated by the foot, yes, sir.

Mr. Park: The door opens and closes automatically?

Mr. Tollerton: Yes. Without any effort on the part of the fireman.

Oh, you asked me about a superheater, Mr. Sheean?

Mr. Sheean: As long as we have gotten over here to the subject of the pneumatic door, let me ask you this: That was also classified here, the automatic door opener, showing the number that were installed. Will you describe, very briefly, just how that is arranged, and in what manner it relieves the fireman from labor?

Mr. Tollerton: The pneumatic doors are of two types, both vertical opening and swing. They are operated by an air cylinder. This is connected by a foot pedal, and stands about 30 inches from the butt sheet of the locomotive. By the operation of the left foot a slight pressure on this pedal, the fire door swings open, relieving the fireman of the pull on the door chain, lifting the latch and pulling the door open.

Mr. Sheean: And this exhibit shows the number equipped with those doors?

Mr. Tollerton: Yes.

Mr. Sheean: To what extent are the automatic door openers being installed in recent years?

Mr. Tollerton: Why, I presume, speaking from our own standpoint, 100 per cent.

Mr. Sheean: Increase in the last three years?

Mr. Tollerton: 100 per cent of application now.

Mr. Sheean: If the new engines?

Mr. Tollerton: All.

Mr. Sheean: All engines?

Mr. Tollerton: All, yes.

Mr. Sheean: Will you describe, briefly, the superheater, and why you classify that as a labor-saving device?

Mr. Tollerton: Well, briefly, the superheater consists of an appliance in the front end of a locomotive with tubes running back through the boiler. The live steam, passing from the boiler, before it reaches the cylinder, passes through these superheat units and takes on a higher degree of temperature by the fact that it passes through these units. In other words, the saturated steam locomotive, with a steam pressure of approximately 185 pounds, will have a cylinder temperature when the steam reaches the cylinder, of approximately 375 to 385 degrees. By the application of the superheater, this same steam is increased in temperature about 200 to 220 degrees. Therefore, on identically the same engines, one superheated and the other not, the superheated engine has a temperature of steam at the cylinder of about 200 to 220 degrees higher.

Mr. Sheean: What is the effect as to any reduction in the amount of coal consumed?

Mr. Tollerton: Very much. Very conservatively speaking, a reduction of 20 per cent in fuel per engine mile is brought about by the superheater.

Mr. Sheean: Do you mean by that, Mr. Tollerton, that two engines, one equipped and the other not equipped with the superheater, and performing the same amount of work, the amount of coal shoveled by the fireman on the superheater will be 20 per cent less than on one which is not thus equipped?

Mr. Tollerton: Absolutely, yes.

Mr. Sheean: Is that confirmed by anything other than your own observation?

Mr. Tollerton: Oh, yes. Thousands of tests confirm that. Do you wish me to read a few?

Mr. Sheean: A few of them, just to show whether or not you are generally supported in that conclusion.

Mr. Tollerton: Well, we will take something near home:

Chicago & North Western Railway; identical consolidation locomotives; cylinders 25x32; weight on drivers 208,000 pounds; tractive effort 47,500; running between Belleplaine and Boone. This is taken from the *Railway Age Gazette*, December 8, 1911, page 1173.

"It shows a saving in favor of the superheated locomotive on locomotive mile basis of 18.8 per cent."

Railway Age Gazette, September 13, 1912, page 469.

"Comparison of two B. R. & P. Railway Consolidation locomotives, tractive effort, 36,000 pounds, run under similar conditions, shows an economy for the superheated engine with arch over the same engine without the appliances, 25.5 per cent, and on 1,000 mile basis, 30 per cent."

Do you want any more? They are all about the same?

Mr. Stone: May I ask you a question, Mr. Tollerton?

Mr. Sheean: Surely.

Mr. Stone: He said B. R. & P. with arch. Does he mean that, or superheaters?

Mr. Tollerton: Superheater and arch. If you wish some more, I have plenty of them.

Mr. Sheean: Well, you say the general conclusion is the same as what you have testified to, conservatively, from your own observation?

Mr. Tollerton: Absolutely. It is the conclusion based on thousands of runs.

Mr. Sheean: Now, Mr. Tollerton, as I remember, there was certain testimony here to the effect that the tractive force of a locomotive may be increased by applying a superheater. Can this be done?

Mr. Tollerton: It cannot.

Mr. Sheean: Tell us why?

Mr. Tollerton: Tractive effort is based on the ability of a locomotive to start a train of a given weight. The superheater does not in any way increase the starting effort of the engine. The value of the superheater is not felt until after speed is attained, so at zero, at the starting point, the saturated engine

will start identically the same amount of tonnage as the superheated engine.

Mr. Sheean: But after starting it and getting it under speed what is the effect of the installation of the superheater as to the coal consumed and as to the work of the fireman in supplying it with coal?

Mr. Tollerton: It immediately begins to make itself felt as soon as sufficient speed has been attained to get the superheat appliances warmed up and in operation. Builders and other authorities give us an average piston speed of about 600 feet before the superheater is in perfect operation. That is probably 10 miles an hour, 8 to 10 miles an hour.

Mr. Sheean: And, then, after attaining that speed, what is the practical effect of the superheaters on the man shoveling the coal?

Mr. Tollerton: Quite a decrease in the water used, and conservatively 20 per cent decrease in the coal shoveled.

Mr. Sheean: Now, just what do you mean by tractive power? Why is there a variation, as you state here, between tractive effort and horse-power?

Mr. Tollerton: Well, as I said before, when an engine starts, maximum tractive effort is exerted, and it is maintained up to about 10 miles per hour, after which it rapidly falls off as speed increases. The horse power, on the other hand, is at its minimum when an engine is just starting, and reaches its maximum around the speed of 30 miles an hour, for a freight locomotive. Above that point the horse power is fairly normal.

Mr. Sheean: Well, then, if we had two locomotives of the same size, one with and the other without the superheater, what would be the greater consumption of coal on the basis of work performed?

Mr. Tollerton: Two engines of identically the same character, with the same tonnage, running at the same speed, your superheated engine would do its work with 20 per cent less fuel.

Mr. Sheean: To what extent are these superheaters being installed?

Mr. Tollerton: I suppose I can best answer that by quoting the builders.

At the present time there are about 12,000 locomotives

equipped with one type of superheater. In 1910, there had been applied 350.

Mr. Tollerton: In 1911, 1,885. In 1912, 4,210. In 1913 and '14, 5,570. This shows a rapid increase in the application of superheaters in the last two or three years.

Mr. Sheean: Now, on your own line, your own experience, what are you doing in the installation of superheaters, or what have you done in the last three years?

Mr. Tollerton: Well, we are like all other lines, recognizing the vast economy of the superheated engine, and are equipping our old power with superheaters, just as rapidly as the money will permit.

Mr. Park: That is power that is going through the shop?

Mr. Tollerton: Absolutely.

Mr. Sheean: In that connection, then, Mr. Tollerton, about how much in weight on drivers does a superheater add to an engine?

Mr. Tollerton: On the drivers, 4,000 pounds.

Mr. Sheean: Well, then, take this proposition here, where they divide 140,000 to 169,999 pounds, taking a certain rate, and then above the 170,000 taking another rate. If you take engines, either in that class or the class below—take an engine weighing just under the 140,000 pounds, and taking one rate, you add a superheater to it, putting 4,000 pounds more on the weight on the drivers, the one that is superheated would take a higher rate under this proposition. What would the situation be in actual practice, as to whether the man having the superheater would be doing less work than greater work?

Mr. Tollerton: Well, I presume I can best answer that by going to the railroad that I know the most about. We have on our line quite a few locomotives that would, with the application of the superheater and brick arch, bring their weights above the following weights on drivers: 80,000 pounds and over; 100,000 pounds and over; 140,000 pounds and over; 170,000 pounds and over; and looking over the information furnished by the Western railroads, I find that there will be approximately 2,002 locomotives involved in these changes that I speak of.

Mr. Sheean: That is, you mean by that statement "involved in these changes," where, without the superheater, they

would take a certain rate, but with the application of the superheater would take a higher rate, although the application of the superheater attachment to the same engine would reduce the work of the fireman in connection with it.

Mr. Tollerton: That is true. I presume I can better illustrate that by taking a concrete case. The railroad companies, as mentioned here, are rapidly superheating old power. Practically every locomotive called for in this change in this rate of pay would be involved in this. The railroad company spends between $2,500 and $3,000 to equip a locomotive with this device. By doing so they save the fireman's labors 30 per cent; they save the engineer's labors considerably, because they give him a more efficient machine. By doing that, investing this $3,000, they have added weight to the driving wheels of the locomotive, so that it brings about this split rate, with this result: They have reduced the labor of the engineer and fireman. They have invested $3,000 to bring this about. The engine pulls no more cars, increased the tonnage not any, and for that they pay a higher rate of pay under the provision of this schedule.

Mr. Sheean: Just give us the concrete case, Mr. Tollerton. Take the weights as at present, the present weights and what the weights would be with the addition of the superheater in any of these classes that you mentioned?

Mr. Tollerton: Here we have on our line 100 Consolidation engines that now weigh 182,300 pounds. By the application of the superheater, the weight of these engines would be raised to 187,300 pounds, putting them both on the 185,000-pound rate, which would call for two firemen on the engine. That is another angle of this thing that I had not brought out. But here is another list of engines: 45 Consolidation engines, now weighing 183,000 pounds on drivers; by the application of the superheat they would be brought up to a weight of 188,000 pounds, which would call for two firemen; after making these improvements that would bring about a reduction in their work.

Mr. Sheean: That is the other proposition of calling for two firemen?

Mr. Tollerton: Yes.

Mr. Sheean: As to a change of rates, Mr. Tollerton, give us some concrete cases where there would be a change in rates by the addition of the superheater, so that the superheater would

take a higher rate on the same engine than it would on one not superheated.

Mr. Tollerton: Quoting from our own line, we would have some ten of these engines that now weigh 138,000 pounds on drivers, and by the application of the superheater they would be brought up to a weight of 143,000 pounds, calling for a new rate with a reduction in the labors of both the engineer and fireman, with an investment by the railroad of approximately $3,000, and no increase in the tonnage of the engine.

The Chairman: If I understand you correctly, then, the only saving to the railroad would be the 20 per cent reduction in the consumption of coal. Is that it?

Mr. Tollerton: Yes; that is true, Mr. Chairman.

The Chairman: That is all the railroad would realize by it?

Mr. Tollerton: Well, and 10 per cent for the arch. An engine equipped with the superheater and arch will save 30 per cent of fuel.

The Chairman: 30 per cent?

Mr. Tollerton: Yes. That is what the railroad would make out of it.

Mr. Park: There is some estimated saving in boiler work, perhaps? Or does the superheater require more attention?

Mr. Tollerton: No; the superheater has now been improved to the point where it is very satisfactory. It has got to be given attention, and is given attention each trip.

Mr. Park: Do you reduce the boiler pressure when you apply the superheater?

Mr. Tollerton: No. Boiler pressures are not changed on locomotives since they went away from the compound engine.

Mr. Sheean: Mr. Tollerton, do I understand, then, that on these engines which you now have, which weigh 138,000 pounds on drivers, letting them stand just as they are, without putting on the superheater, they would pay one rate under this proposal, but if the company spends $3,000 on half of those locomotives, thereby reducing the amount of coal which the fireman would shovel about 30 per cent on the ones that are equipped, nevertheless, the firemen shoveling 30 per cent less coal on the engine would take a higher rate of pay than the one who still continued to shovel on the saturated engine, if this proposal went into effect?

Mr. Tollerton: That is correct, yes.

Mr. Sheean: I wish you would make that perfectly clear, Mr. Tollerton. The 138,000 pound engine takes a certain rate under their proposal, because it is between 100,000 and 140,000 pounds on drivers?

Mr. Tollerton: Yes, probably we had better quote this schedule.

Mr. Sheean: Well, it is based on weights between 100,000 and 140,000 pounds on drivers?

Mr. Tollerton: Yes.

Mr. Sheean: What rate is given in the schedule there?

Mr. Tollerton: $4.80 for engineers in passenger service.

Mr. Sheean: $4.80 for engineers. How much for firemen?

Mr. Tollerton: $3.15 for firemen in passenger service.

The Chairman: Are you reading from the proposal or from the schedule?

Mr. Tollerton: From the proposal.

Mr. Sheean: From the proposal, Mr. Chairman.

Now, Mr. Tollerton, if the Rock Island had 20 of those engines and concluded to superheat as much as they had money for, and that money happened to be one half of them, by putting the superheater on 10 out of your 20 engines, the 10 on which you put the superheater would do their work with 30 per cent less work for the fireman than the ones which you left standing as they are?

Mr. Tollerton: Yes; decidedly less work for the engineer, too.

Mr. Sheean: And, thus equipped, and thus making less work for both engineer and fireman, they would take a higher rate than the remaining 10 engines which were not equipped or improved?

Mr. Tollerton: Absolutely, according to this schedule; they would call for a five dollar rate.

Mr. Sheean: So that if the proposal went into effect, as to the engines which you did superheat, thereby relieving the fireman and engineer of work, you would pay a higher rate of pay to them?

Mr. Tollerton: Yes.

Mr. Sheean: And if you equipped half of them, the other half remaining just as they are now, the men who stayed on the

engines as they are now and continued to shovel 30 per cent more coal, would receive a lower rate of pay than would those working on the engines equipped with the superheater.

Mr. Tollerton: That is correct.

Mr. Sheean: You say it is about 4,000 pounds that the superheater adds to the weight on drivers, taking the engine as it stands now and equipping it with the superheater?

Mr. Tollerton: Yes; 4,000 pounds.

Mr. Sheean: Is the superheater attachment susceptible of being put on engines as they are constructed, without the necessity for building new engines?

Mr. Tollerton: Absolutely.

Mr. Sheean: To what extent are you doing that—putting superheaters on existing engines?

Mr. Tollerton: I think I had better quote:

"The application of superheated steam engines already in service began about 1910, and at present there are 3,855 engines equipped, 2,060 of which were equipped in the years 1913 and 1914. This shows the rapidity with which this device has been applied in the last couple of years."

I may add to that that the only reason which is keeping our line from more of an application of the device is the necessary money. Every one realizes the economy.

We are equipping about two engines per month on our railroad in our own shops, or twenty-five a year.

Mr. Park: Is it necessary to change the cylinders when you make the change?

Mr. Tollerton: It is necessary if the cylinders are what is called slide valve. With the piston valve cylinder it is not necessary to change.

Mr. Sheean: Is there any particular reason, Mr. Tollerton, why this development has been so rapid in the last few years? Has the superheater been brought to a greater state of perfection recently?

Mr. Tollerton: Yes. The superheated locomotives have been largely in use in Europe for years, but on the American railroads it started around 1908, when a good many of the lines got a trial fuel. At that time the development of the device had not been completed, and there was more or less trouble

with it. Those have all been perfected, and today practically every locomotive built is equipped with superheater.

I will read you what "The Builder" had to say about it.

"I inquired from the Baldwin and the American Locomotive Company about the percentage of the locomotives that they had built for the lines west of Chicago, equipped with superheaters. They replied as follows:

"The American Locomotive Company stated that 89 per cent of the road engines built in 1913 and 1914, for the roads west of Chicago, were equipped with superheaters; and they estimate that at least 95 per cent of the future locomotives will be so equipped. The Baldwin Locomotive Works state that 90 per cent of the number built in the last two years were equipped with superheaters, and practically all of the locomotives, in their judgment, built in the future will be so equipped."

Mr. Park: Does this principle apply to switching locomotives as well as the road locomotives?

Mr. Tollerton: It does. I presume I can answer that question better by quoting from Mr. Quayle, General Superintendent of Motive Power of the North Western Railway, in an address before the American Society of Mechanical Engineers, on January 15th of this year, at which I was present. Mr. Quayle stated that his company has about forty-five superheated switch engines in service in the Chicago yard, and that with the saturated switch engine of identically the same kind, in the same service, it is necessary to stop and go for water around 10:30 a. m., which is a very busy time and means the entire crew being idle during this time. It was also necessary to again get water, late in the afternoon, which is a very busy time for getting freights ready for leaving in the evening. With the superheated switch engine, it was not necessary to get water before 2 p. m., which did not take the engines away during the busy period. In other words, your superheated switch engine consumed one tank of water during the day, while the saturated consumed two.

Mr. Park: Correspondingly less coal?

Mr. Tollerton: Absolutely.

The Chairman: So there was not only an economy in coal, but an economy in time.

Mr. Tollerton: In time and water.

Mr. Sheean: And the labor of getting up and taking water.

Mr. Tollerton: All involves labor; also the taking of coal, because firemen take coal en route.

Mr. Burgess: Can I ask a question?

Mr. Sheean: Surely.

Mr. Burgess: Mr. Tollerton, you are ready to agree that taking water does increase the labor, if I understand your answer correctly.

Mr. Tollerton: Of course, there is labor about performing any duty. When we get up and walk out of this room, we perform a little labor. Some of the lines, however, take water without stopping, so the fireman does not perform any labor on those roads, taking water.

Mr. Burgess: But in a general way, taking water is labor, if I understand your answer correctly.

Mr. Tollerton: Yes, generally speaking.

Mr. Burgess: Thank you.

Mr. Sheean: Now, these other matters covered on Exhibit 15, Mr. Tollerton, power coal pusher. I wish you would just briefly describe what that is, generally.

Mr. Tollerton: Power coal pusher is a system of cylinders placed over, on or under the tender; by connecting with pistons moves the shoveling sheet forward, increasing the incline and pushing the coal forward toward the gate.

Mr. Sheean: On hopper bottom tenders also enumerated here, will you briefly explain just what that is in the way of a labor saving device?

Mr. Tollerton: Well, a hopper bottom tender is so designed that the angle of the coal space is such that it will feed the coal to the coal gate.

Mr. Sheean: You mean that the tender is constructed in such a manner that gravity brings the coal down to the gate?

Mr. Tollerton: Yes, sir. The incline of the tender is such, where the coal is carried, that it falls by gravity against the coal gate.

Mr. Sheean: That is, the back part of the tender is built on an angle?

Mr. Tollerton: Yes, 45 degrees or greater.

Mr. Sheean: So that the top of the surface on which the

coal is loaded in the tender, is a wider space than the space at the bottom?

Mr. Tollerton: Very much so.

Mr. Sheean: And the weight of this broader surface of coal at the top, has a tendency to bring it down by gravity, to the smaller space at the bottom.

Mr. Tollerton: Tenders designed today bring forward 70 per cent of the coal in the tender, making it unnecessary for the fireman to take a second step.

Mr. Sheean: Now, on some of the old engines, the smaller engines—by the way, the Rock Island has a good many branches, has it not, Mr. Tollerton?

Mr. Tollerton: Yes, I think about 52 per cent of our total mileage is branch line.

Mr. Sheean: And on the branch line, the smaller power is more generally used than on the main line.

Mr. Tollerton: Oh, yes.

Mr. Sheean: Take some of the older engines, about what is the distance, or can you tell us the distance there from the deck of the engine, back to the rear of the tank? I do not mean the rear of the tank, back to the coal space.

Mr. Tollerton: I understand. From the fire door here (indicating) to the bottom of the slope of the tender, on our oldest type of engine, is 9 feet.

Mr. Sheean: 9 feet?

Mr. Tollerton: Yes. On the later type of engines that is reduced down to 7 feet, 6 feet 6 inches.

Mr. Sheean: On the oldest type of engine, where the distance is 10 feet, in a general way are those the lighter engines?

Mr. Tollerton: Oh, yes, the smaller engines.

Mr. Sheean: So that a hard and fast rule whereby coal should at all times be within reach of the fireman from the deck of the engine, would affect more particularly these smaller and older types of engines that have been in existence for a great many years?

Mr. Tollerton: Yes. On some 2,000 observations, made by practical locomotive engineers in this Western territory, one per cent of the fireman's time only was engaged in pulling down and shoveling down coal. This in itself is an indication of the improvement in tender design, and indicates that no great portion of the fireman's time is engaged in this work.

Mr. Sheean: Now, Mr. Tollerton, you are getting into railroad language again, about "knocking down."

The Chairman: What per cent of the labor he performs would be represented by this process? You say only one per cent of his time is consumed in getting this coal down. What per cent of his labor would he be saved by virtue of this process?

Mr. Tollerton: What per cent of labor would he be relieved of, if he were relieved of this one per cent of time?

The Chairman: Yes.

Mr. Tollerton: Well, it would be a minute in one hundred minutes. That is what it would be.

The Chairman: I do not comprehend your answer.

Mr. Tollerton: Well, we will take a trip of 10 hours; that is 600 minutes. He would be relieved of 6 minutes of work in a trip of 10 hours.

Mr. Burgess: Then, Mr. Tollerton, it would be an immaterial factor, in case the Board granted this request, if that is the case?

Mr. Tollerton: How is that?

Mr. Burgess: If the fireman only used six minutes in ten hours to shovel the coal down, it is fair to assume another man could do it just as quick, so it would be an immaterial factor in the decision of the Board in the event they granted that proposal?

Mr. Tollerton: Well, to me it indicates that tender designing is such that the coal does come against the coal gate; also that improvements in coal chutes which enable the fireman to take coal more often aid in this.

Mr. Burgess: But in event that the coal does come against the gate, then the proposal would be inoperative, because there would be no reason to put anybody in there to shovel ahead? So, if your deductions are right, it still implies that it would be an immaterial factor if the Board decided to grant that request, because, as you state, first, it is only six minutes in ten hours; second, that a great part of the coal is kept against the gate by the tender design.

Mr. Tollerton: I would say that, in my judgment, no general rule could be written to cover such a vast territory as this movement covers.

Mr. Burgess: But if it is a fact that the coal is kept largely against the gate by the design of the tender, and there is only six minutes in ten hours used by the fireman, it still implies that that request is an immaterial factor, so far as the railroads are concerned?

Mr. Tollerton: I would say that, in my judgment, with the limited amount of time consumed by the fireman in doing this work, that a general rule of this kind should not cover the amount of mileage represented in this movement.

Mr. Burgess: Yes, Mr. Tollerton, but still that is really an opinion on the part of yourself, and I was trying to obtain from you whether or not it would be an immaterial factor if the Board granted this request, because of the fact that the tender design keeps the coal up against the gate, and because of the additional fact that only one per cent of the fireman's time is used in keeping the coal there?

Mr. Tollerton: You understand my deductions were made on 2,000 observations. It did not cover this vast area. I am merely making my reply on my deductions from the observations taken.

Mr. Burgess: On the Rock Island?

Mr. Tollerton: Oh, no, no; stretched over twenty railroads in this movement.

Mr. Sheean: Mr. Tollerton, how, in your judgment, would it be possible in practical operation to have this extra man there at the particular six minutes of the trip when it was necessary to do this shoveling down, without incurring vast expense to the railroad companies?

Mr. Tollerton: It would be impossible.

Mr. Sheean: Well, then, while it may be an immaterial factor so far as the fireman who is now putting in one per cent of his time is concerned, it would be a very material factor in money to the railroad companies if they at all times had to provide an additional man to cover these occasional six minutes on the trip, of knocking down coal?

Mr. Tollerton: It would be necessary to put two men to cover one point, because you would have to cover day and night, and if he only had to shovel down for one train each twelve hours, you would have to pay him a full day's pay.

Mr. Park: You could not put him on the engine and keep him there. That would be another fireman.

Mr. Tollerton: Oh, no.

Mr. Byram: What would happen if that coal should, during the course of the trip, get so far away that it would not be within reach? Suppose it was between coaling stations, how could this rule apply?

Mr. Tollerton: The fireman would pull it down, possibly with the aid of the head brakeman.

Mr. Byram: Under this rule, it says the railroad company must keep it within reach at all times. Isn't that it?

Mr. Tollerton: Yes, that is the rule.

Mr. Byram: How would it be possible for a railroad to do that at all times?

Mr. Tollerton: Absolutely impossible.

Mr. Byram: In case the coal should be used up to such an extent during the course of a trip between stations that it could not be reached from the deck of the locomotive, under this rule it would be necessary for the railroad to provide some means to take care of such a situation?

Mr. Tollerton: Indeed it would.

Mr. Byram: How would you do that?

Mr. Tollerton: There is no practical way of doing it that I can see at the present time.

Mr. Byram: Then the question of whether it is six minutes or one minute is not so important as it is the time and the opportunity that the railroad would have for providing for work of this kind, is that true?

Mr. Tollerton: That is true.

Mr. Burgess: Then, Mr. Tollerton, if I understand you correctly, you stated there is no practical way. Are we to understand then that this power coal pusher is a failure?

Mr. Tollerton: Shall I tell you my own experience?

Mr. Burgess: No. I was trying to find out if that was a failure. I understood it is tabulated there, Mr. Tollerton, as a labor saver.

Mr. Tollerton: The power coal pusher, as I understand it, costs about $450 per application. A great many railroads are using it to more or less extent. So far as I know, they are an entire success, as designed now. The first ones were a fail-

ure, but like everything else, they have improved them, until now they are used quite a bit on the average railroad. Of course, it is on the extremely heavy power that they are using them.

Mr. Burgess: Well, that would be a practical way, wouldn't it, Mr. Tollerton, to introduce that power coal pusher, or install the power coal pusher, wouldn't it?

Mr. Tollerton: Well, the expense of your power coal pusher would be almost prohibitive in the smaller power, because your tender is not of such shape or capacity that you could install it.

Mr. Burgess: But apart from the expense, if that were installed, it would keep the coal ahead, wouldn't it?

Mr. Tollerton: The tender now keeps it ahead. It is unnecessary to put on a pusher.

Mr. Burgess: Well, if it were necessary to keep the coal there, you could install that?

Mr. Tollerton: Well, it would seem to me that this general broad question should be left to the individual railroads. I would not care to decide what could or what could not be done on a small line in the Western part of the country. If a rule of this character is something that is in more or less schedules in different words, it is something that is entirely proper to be left to the railroads, and they are the only ones that can install it, in my judgment.

Mr. Burgess: Well, Mr. Tollerton, I would not like to argue with you, but as a man who has been in the mechanical department practically all his life, you would not be willing to say that if by the introduction of a power coal pusher the coal could be kept in reach of the fireman, that that would not be a practical operation, would you?

Mr. Tollerton: I presume that would be something for the local people to decide. I can recall numerous occurrences where a blanket rule of this kind would result in a great deal of hardship to the railroads.

Mr. Burgess: What I was trying to get at, Mr. Tollerton, was this: whether you, as a mechanical expert, did not recognize that as a practical way of keeping the coal in reach of the fireman, apart from the cost?

Mr. Tollerton: I consider the most practical way of keep-

ing coal within reach of the fireman is by the proper designing of the tender, which will shoot it by gravity to the coal gate, without any mechanical appliances whatsoever.

Mr. Burgess: Then you are not an advocate of the power coal pusher?

Mr. Tollerton: Most certainly not; not after my personal experience.

The Chairman: That is the device, then, that you described a little while ago in your testimony?

Mr. Tollerton: Yes, sir; one of the devices.

The Chairman: Do I understand that under that device, the tender being loaded with coal, we will say, as the engine runs, the coal, by gravity, will all come down and be in place automatically?

Mr. Tollerton: Without the device, Judge, tenders properly designed, the shape of the coal space being such, 45 degrees, that it will shoot by gravity, 70 per cent of the contents of the tender will be carried against the coal gate. What Mr. Burgess was talking about was a power device that does exactly the same thing, merely moves the angle of the coal gate to a more acute angle, being pushed up by cylinders.

The Chairman: Yes; I understood that. What I wanted to know was about the 45 degree angle that you spoke of.

Mr. Sheean: That we have here as the hopper bottom tender in the column on this exhibit. Some roads provide the hopper bottom tenders on their larger and heavier power, on the newer power?

Mr. Tollerton: Oh, I think all of the tenders built today are the hopper bottom type, and will shoot 70 per cent of the contents against the coal gate.

Mr. Sheean: A hard and fast rule, as I understand you, such as is here proposed, by which coal will be kept where it can be reached by the fireman from the back of the locomotive, so far as the Rock Island is concerned, would affect more particularly the small, light engines on branch lines that did not have these devices at the time of their building and have never been operated with them?

Mr. Tollerton: Absolutely.

Mr. Sheean: The practical difficulty, at the present time, under any such rule as this, would not be on the larger or heavier

power, where one or the other of these various forms are provided?

Mr. Tollerton: Yes.

Mr. Sheean: Now, after the 70 per cent, Mr. Tollerton, has been brought down by gravity, does it occasionally happen that some part of the remaining coal may have to be shoveled, on an extremely long trip, or where there have been delays of any sort?

Mr. Tollerton: It all depends upon the distance between your coal chutes. Now, on our own line, the firemen practically never have to shovel down any coal. The contents of an average, modern designed tender is about 15 tons carrying capacity. 70 per cent of this coming against the gate, would be about 10 tons. The average miles made in both freight and passenger service is ten. This would bring the coal against the coal gate for 100 miles, before the fireman would have to go back in the tank after it. In our own line, the average distance between coal chutes in main line service, is 56 miles. Therefore, the fireman would scarcely ever, or practically never have to go back, unless he was delayed en route an unreasonable length of time.

Mr. Sheean: And what changes have there been, within your knowledge and observation, in the matter of installing additional coal docks or coaling stations, in recent years?

Mr. Tollerton: Well, with our own line, we have installed a great many modern chutes. We will install more, when the money is available for that purpose.

Mr. Sheean: And now, the average distance is down to 56?

Mr. Tollerton: 56 miles; that is in main line service.

Mr. Sheean: Now, you mentioned briefly here the automatic door openers and described power grate shakers. Just tell us what those are.

Mr. Tollerton: They are a pneumatic cylinder, attached to the frame of the locomotive, alongside of the ash pan, with a piston, which connects to the lever shaking the grates. By the operation of a small valve in the cab, the fireman gets this motion (illustrating); shakes the grates without any effort whatsoever on his part.

Mr. Park: How was it done before that?

Mr. Tollerton: It was done with a shaker bar. A long bar, socket in the end of it, lever through the deck. Put this bar on the lever and pulled it. Do it yet.

Mr. Sheean: On this larger and heavier type of power, what is the general situation as to the power grate shakers, or on the newer type of engine?

Mr. Tollerton: Well, I could not answer that, because I do not know what percentage are equipped. This exhibit shows, however, that on the Western railroads—

Mr. Sheean: 118 engines have that device.

Mr. Tollerton: 118; total of 192.

Mr. Sheean: Oh, yes, on the Mallets.

Mr. Tollerton: Yes.

Mr. Sheean: Power reverse gears is also put here as one labor saving device. How does that operate?

Mr. Tollerton: Well, they have two. One is a screw reverse; the other operated either by air or steam, both devices removing a great deal of labor from the locomotive engineer.

Mr. Sheean: Well, just tell us the physical work of reversing, the engineer does without, and that he has to do with our reverse gear.

Mr. Tollerton: I believe locomotive engineers will agree that the effort in moving a reverse lever, letting it down in shutting off on a high speed passenger train, or hooking it up, running at speed, or performing any other movement with the reverse lever at speed, or stopping, requires some physical effort. This power reverse gear removes that effort. It is possible with the screw reverse, an engine running at high speed, to hook the engine on, shorten the cut-off without any effort whatsoever; lengthen the cut-off of an engine running at high speed. With a reverse lever, this movement requires some physical effort, particularly if the valves are dry at all.

Mr. Sheean: And on the larger and heavier types, this exhibit shows the extent to which these appliances have been installed?

Mr. Tollerton: This exhibit shows it here.

Mr. Sheean: Well, I just wanted to get why, Mr. Tollerton, you classified on this exhibit these things as being labor saving devices. Some question was asked Mr. Keefe the other day.

Mr. Tollerton: That is the reason.

Mr. Sheean: I wished to explain by a mechanical man why that mechanical man considered these labor saving devices.

Mr. Tollerton: That is the reason.

Mr. Sheean: You have in the last column, side door slide, bottom air dump or hopper ash pans. Just give us a general idea how those save labor.

Mr. Tollerton: They save labor to the extent—

Mr. Sheean: What they are, in this last column, describe these appliances.

Mr. Tollerton: They are ash pans, operated either with a drop door, a side door, a slide bottom, or an air dump for removing the ashes from the ash pan.

Mr. Sheean: How was that work done before the installation of these devices, and how is it done now?

Mr. Tollerton: Before the installation of the device, on some types of engines, it was necessary for the fireman to hoe the pan out, using an ash hoe. This, of course, is now taken care of mechanically.

Mr. Sheean: Now, has there been any change in the general design of engines, of the recently constructed engines that in any manner affects the work of the engineer or fireman?

Mr. Tollerton: A marked change.

Mr. Sheean: Well, tell us some of them.

Mr. Tollerton: Better design of fire box; increase in the heating surface of both fire box and tubes; the application of a superheater and of a brick arch. That is, in a general way, the improvement in locomotive design that saves fuel.

Mr. Park: The automatic bell ringer; is that a feature?

Mr. Tollerton: I was coming to that, Mr. Park, because I said that in a general way is the apparatus that saves fuel. For the locomotive engineer, we have a reduction in his labors by the application of the outside valve gear.

Mr. Sheean: Now, tell us about that. What do you mean by that?

Mr. Tollerton: The outside valve gear, so-called, was originally gotten up in France, the Walschaert gear.

Mr. Sheean: Well, what is it?

Mr. Tollerton: The Stevenson link, which was the first of the reversing locomotives, is operated by an eccentric, which is attached to the driving axle of the locomotive, underneath the frame. The Walschaert gear does away with the eccentrics entirely; does away with all the underneath work and removes

the valve motion to the outside, where it is very accessible to the locomotive engineer.

Mr. Sheean: Well, before it was accessible, what did he have to do about it or with it?

Mr. Tollerton: Of course, he had to lubricate it. That is one of the reasons we brought it outside, was the fact that it was not always lubricated, and he had, of course, the responsibility of it being underneath the engine, and had to get under there, if it required any attention en route. Now, by having it outside, all that work is removed from him.

Mr. Park: Was it quite frequently the case that the eccentric slipped and the engineer had to go under there and set the valves?

Mr. Tollerton: Very frequently. It was frequently the case that it ran hot, due to the lack of lubrication, which made it necessary to give it some attention.

Mr. Burgess: Is there any other reason for an eccentric running hot except lack of lubrication?

Mr. Tollerton: In my judgment, that is the principal reason. I cannot recall, at the present time, any other reason for an eccentric running hot, unless it should be loose on the axle.

Mr. Burgess: The composition of the metal in the eccentric strap or the eccentric would have nothing to do with making it run hot?

Mr. Tollerton: Nothing whatever, if properly lubricated. I am assuming, of course, that you are not going to run steel and steel together. I am assuming that you are taking the metals as you find them on the locomotive today and as they would be put on by the builders.

Mr. Burgess: My question was: The composition of the metal would not have anything to do with the eccentric running hot?

Mr. Tollerton: Absolutely not, if properly lubricated.

Mr. Burgess: Then you qualified that by saying that if you run steel and steel together—

Mr. Tollerton: It is never run together. I merely qualified that by saying that the metals as now run in an eccentric and strap will not run hot except for lack of lubrication.

Mr. Burgess: You never knew of an instance where a

locomotive came from the shop and it was necessary to remove all the eccentrics and all the straps and put on new ones before the engines could successfully go over the road, did you?

Mr. Tollerton: That was due, if that was the case, entirely to improper fitting up in the builder's shops.

Mr. Burgess: If the superintendent of motive power declared that it was an improper mixture of metal would not that be taken as a substantial reason?

Mr. Tollerton: Well, I could not say as to that, of course. I cannot recall, at the present time, any combination of metals that would bring about the situation you claim, except improper work.

Mr. Sheean: Mr. Tollerton, there has been something said here about the maintenance of superheaters, or the fact that a superheated engine, if properly maintained, was all right, but that generally they were leaky. What are the facts about the maintenance of superheaters and the necessity of maintaining them to get any efficiency out of them?

Mr. Tollerton: The superheater as applied to the locomotives today does not fail. It requires attention, naturally, like any other appliance to the locomotive. It requires no more than any other appliance to the locomotive.

Mr. Sheean: On the Rock Island, what steps are taken to keep these superheaters in good condition?

Mr. Tollerton: That is taken care of in several ways. On our own line and other lines a special force of expert locomotive engineers are employed for this purpose. On our line we have the title of "Supervisor of Locomotive Operation." The man in that position is an experienced locomotive engineer. He has as his assistants practical locomotive engineers on every division and district of the railroad, whose first duty is to look after the economies in fuel and the proper maintenance of superheaters and the attachments. Besides this, the American Superheater Company has a force of expert locomotive engineers traveling over the various railroads in the interest of the superheater. Those experts report jointly to the American Superheater Company and to the railroad company, and any defects found anywhere are promptly corrected.

Carrying the matter further, on our own line we have what we term a practice card, printed instructions concerning the

maintenance and repairs of all parts of locomotives and cars. I will read what we have on the maintenance of superheaters. It is voluminous, so that I will not take the time to cover all the details:

"It is required that superheater flues be examined at the end of each trip, and clinkers and cinders removed and blown out if necessary. Also, at each washout period, the superheat flues be blown out by use of steam before the boiler is washed out, using superheater flue blower provided for that purpose."

Then, further down it calls for the testing of all units with hydrostatic test every sixty days, to insure their being in good condition.

Mr. Sheean: Mr. Tollerton, what is the practice as to any defect or inefficiency of any sort being required, in practical operation, to be reported by the engineer if it develops on any run?

Mr. Tollerton: The engineers, of course, are supposed to report the work necessary to their locomotives.

Mr. Sheean: Does that include covering any defects with reference to the superheater, any leaks of any sort?

Mr. Tollerton: Oh, yes. That is included with their locomotive. We do not always get the accuracy of reports, though, from our engineers, that I would like to see.

Mr. Sheean: Just what do you mean by that, Mr. Tollerton, as to accuracy of reports?

Mr. Tollerton: Locomotive engineers and firemen have now been relieved of so many of their duties that the same interest is not displayed by them in properly reporting the work on their engines as was formerly the case. If it was done, a great deal of expense would be saved in the roundhouse. One of the difficulties that our division mechanical forces have is to have the enginemen properly report their work, to save the unnecessary labor of roundhouse mechanics in searching for something because the engineer did not properly report it.

Mr. Sheean: What do you mean by "did not properly report it"?

Mr. Tollerton: For instance, you will frequently see on a report book, "Examine cylinder packing." There are two sets of cylinder packing on a locomotive, one on each side. If the engineer would report "Examine right side," the shop me-

chanics would not have to examine both sides. It is very easy for the engineer to determine which side is blowing. The same thing applies to "Examine valves." You will frequently see a report of that kind.

Mr. Sheean: What do you mean by seeing a report? The engineer's report?

Mr. Tollerton: The engineer's report in the work book in the roundhouse.

Mr. Sheean: "Examine valves"?

Mr. Tollerton: "Examine valves." There is nothing left for the roundhouse force to do but to examine both of them. The engineer is in bed by that time. It is a very easy matter for the engineer to determine which valve is blowing, whether it is the right or the left valve. You frequently see reports: "Examine cylinder packing and valves." There are two valves and two cylinders, so that the man has to go through all of them to find a defect probably existing in one of them.

Mr. Sheean: With reference to superheaters, does the engineer have an opportunity to determine, with reference to the superheater?

Mr. Tollerton: Absolutely.

Mr. Sheean: As to the location of any defect or leak?

Mr. Tollerton: Yes; by the performance of his locomotive he will know very readily that there is some defect in his superheater.

The Chairman: Are we to understand, Mr. Tollerton, that your contention is that a large number of engineers, or a considerable number of engineers, are remiss in making their reports?

Mr. Tollerton: I could not say as to that except from my own experience. I am merely talking about the experience that I have had. I have no figures on it.

The Chairman: What steps has the company taken to correct that trouble?

Mr. Tollerton: We take the only steps that are available. We talk to our men. When a man makes an improper report, the roundhouse foreman or the road foreman talks to him.

The Chairman: Do you usually succeed in inducing them to correct any mistakes they have made in that respect, or are they obdurate and unwilling to do it?

Mr. Tollerton: I have found our locomotive engineers and firemen always most willing to do anything they could. They have been relieved from so many duties, now, their responsibility in connection with their work is so slight, that it has a tendency to get them away from this.

The Chairman: In other words, you think relieving them from these extra duties has a tendency to make them careless and negligent?

Mr. Tollerton: Exactly.

Mr. Park: Do you think, Mr. Tollerton, that an engineer employs as much of his time at present as he did, say ten years ago, in looking after his engine while it is laying over?

Mr. Tollerton: He does not use any of his time now in looking after his engine. He does not.

Mr. Sheean: Well, Mr. Tollerton, we have gotten off here into a statement of these men having been relieved of so many duties. I wish you would just tell us what some of these duties were that they have been relieved from your knowledge and experience in charge of motive power of railroads here in the West; what they did when you went to work and what they have been relieved of doing, as the larger and heavier power has come in?

Mr. Tollerton: When I was first put in charge of engineers and firemen I was 21 years of age, and I have had them in charge and under my supervision, continuously, ever since. My associations with them have been of the most pleasant character.

Locomotive firemen formerly looked after the front ends, the stacks, cleaned them and painted them; they looked after the jacket; they looked after all of the brass work, if there was any, and they kept it clean; the interior of the cab, including the windows, and all the fittings inside of the cab; they looked after their supplies, filled the oil cans and various other things; brought everything to their engine and took it away at the end of the trip; they looked after the filling and the cleaning of the headlight; they have been relieved of all of those things.

Mr. Byram: Are any of these engines on which these duties were performed still in service?

Mr. Tollerton: Oh, yes, thousands of them.

Mr. Byram: So that, as to those particular engines, they have been relieved of those duties regardless of increased size?

Mr. Tollerton: Regardless of increased size and regardless of the time on duty. On the small engine on the branch line, that makes its day in three hours, the fireman is relieved of that work just the same as on the Mikado engine.

With the locomotive engineers, it is also the fact that they have been relieved of the filling of grease cups, packing and caring for all cocks in cabs; relieved of all the lubrication of their locomotive, tender, engine truck, driving boxes, and so on and so forth, setting up of wedges on pooled locomotives. That is all I can recall at the present time. They have been relieved of almost every duty now but opening the throttle.

Mr. Shea: The world seems to be progressing, doesn't it?

Mr. Tollerton: Progressing very rapidly in that direction.

Mr. Sheean: We have been talking here of the large power, heavy locomotive. On this Rock Island branch line, where you have these smaller engines still left, do I understand that all of these duties that you have just been describing here have been taken off both the engineer and fireman on your branch lines, as well?

Mr. Tollerton: Well, as to all of the duties that I have described of the fireman, that is so; with the locomotive engineer it is true as to all of the duties with the exception of setting up of wedges. On branch lines, the engineers look after that feature.

Mr. Sheean: Setting up wedges, in Article 14, "where engineers and firemen are required to set up wedges, fill grease cups or clean headlights, they shall be relieved of such service at all points where roundhouse or shop force or an engine watchman is employed."

Do you know of any line that has the engine watchman set up wedges or do this work?

Mr. Tollerton: No; and in my judgment, roundhouse employes, as called for in this article, are not competent to set up wedges.

Mr. Sheean: First, you had better explain to me and to some of the members of the Board what setting up wedges is, Mr. Tollerton. You had better do that before you tell us why they are not competent to do it.

Mr. Tollerton: On the locomotive driving wheel is a driving box that carries the weight of the engine. On the front and

back of that driving box is a shoe and wedge, the wedge being adjustable to take up the pound or the wear in the driving box. These wedges have to be set up from time to time to keep the pound out of the locomotive.

The Chairman: Do you mean that it is necessary to drive the wedge in tighter or to put it in a different groove, or what?

Mr. Tollerton: They are operated by a wedge blade, which forces the wedge against the incline or taper of the frame. By forcing the wedge up it forces it forward and takes the play out of the driving box.

The Chairman: Is that done by manipulating the screw?

Mr. Tollerton: Manipulating the screw, yes, sir.

Mr. Park: Would it not be rather a nice adjustment?

Mr. Tollerton: Entirely so, yes. It cannot be done. You could not follow that article if it were granted. It would be impossible, because many of the railways have agreements with their shop employes which would prevent that article being applied, even if it were agreed to.

Mr. Park: It is considered a very essential part of the engineer's duty to make that adjustment?

Mr. Tollerton: Yes. And railroad companies have an agreement something like this, that either a machinist or a locomotive engineer will adjust these wedges. In that article neither appears.

The Chairman: You don't mean to say there could be any agreement which would supersede or interfere with any decision that this Board might make? Of course, I have no view about what the Board will do.

Mr. Tollerton: I would say this, Judge, that assuming that this article were granted as written, it would be impossible for the railroad companies to work to it without causing a serious labor disturbance on their railways.

Mr. Sheean: Or without getting a machinist kept specially at your branch line to set up the wedges?

Mr. Tollerton: You would have to greatly increase your number of mechanics.

Mr. Park: Mr. Tollerton, could a machinist set that wedge properly? Is it not a fact that the engineer, while on the road, intuitively gets the pound there and knows what it is and how

severe it is, and how the adjustment should be made, through long years of experience?

Mr. Tollerton: Yes, that is true. That comes from experience.

Mr. Park: He can probably tell a machinist better than he could a wiper?

Mr. Tollerton: Absolutely. And another thing about it, that knowing just where the difficulty is, they both being of trained minds, both the engineer and machinist, could convey to the other just what the difficulty was.

Mr. Park: As a matter of fact, he could do it better himself—better than he could tell anybody else how to do it?

Mr. Tollerton: Oh, absolutely. And, furthermore, I want to say as to this rule, as written now, calling for them to be relieved of setting up wedges, that on the majority of railroads they are now relieved from setting up wedges on heavy power. This rule would relieve them of setting up wedges on any power. It would relieve a man on the branch run, who runs three hours and gets ten for it, from setting up his wedges. The company can get no further work out of him, because he has made his trip. But he cannot set up his wedges.

The Chairman: Well, upon what theory were they relieved of this work, on the roads where they are now relieved from performing this duty?

Mr. Tollerton: It was an award, I believe.

The Chairman: I did not know but what it was by schedule agreement.

Mr. Tollerton: I believe it was an award. Generally speaking, I think that can be left to the individual railroads. There is some power in service today where the enginemen should be relieved of that service. I quite agree to that. But that should not be a rule relieving them of the work on every type and kind of locomotive.

Mr. Sheean: Well, what is your actual practice here? You say you have a large percentage of branch mileage and large percentage of main line mileage. Where do you relieve and where do you not relieve, and what is your practice?

Mr. Tollerton: Our schedule reads: "Wedges will be set up on road engines in pool service only." That is the schedule we are working under at the present time.

Mr. Burgess: Mr. Sheean, can I ask Mr. Tollerton a question?

Mr. Sheean: Surely.

Mr. Burgess: Mr. Tollerton, so that there will not be any misapprehension in regard to setting up wedges, won't you kindly tell the Board why the engineers object to it? I particularly refer to the difficulty of getting at the adjusting screw on the modern engine, and whether it is possible, for some engineers, at least, to get under an engine, to set a wedge up, without having the pip?

Mr. Tollerton: I think that with 98 per cent of the locomotives in this movement, that it is entirely practical for the locomotive engineer to get under the engine and adjust the wedges, but they are at the present relieved of considerable of those engines, at the present time.

Mr. Burgess: And that was by mutual agreement, was it not, with the officers of the Rock Island and the committee on the Rock Island?

Mr. Tollerton: I think it was an award, Mr. Burgess. Now, I am merely speaking from memory, you understand. They followed the lines of the award.

Mr. Burgess: Well, you do not know of any road that agreed with the engineers mutually to relieve them from setting up wedges?

Mr. Tollerton: I do not know of any. There may be; I know that there are a great many of these schedules that I have looked over, since I have been on this committee for a solid year, that relieve them; but just the percentage at the present time I could not say. I will get that information, though, if you wish?

Mr. Burgess: No, sir; but I was particularly interested in your reply, where you stated that the engineers should be relieved, in some instances, and I thought that you might possibly have left a wrong impression relative to the position of an engineer, that he has to get into to set up the wedges on a modern locomotive.

Mr. Tollerton: Mr. Burgess, the modern locomotive today has more room underneath it than the old engine.

Mr. Burgess: Mr. Tollerton, speaking of the Walschaert valve gear.

Mr. Tollerton: Speaking of all the modern equipments. They have all been taken outside, and the reason they have been taken outside, as I said before, the enginemen have been relieved of so many duties that the motive power official today realizes that he must put this stuff out where it is accessible, in the successful operation of a locomotive.

Mr. Burgess: Just tell me how he sets up a wedge, from the outside.

Mr. Tollerton: Between the spokes of the wheel. Entirely practicable on any sized locomotive, passenger engine or anything else.

Mr. Burgess: I have not been running some of the modern locomotives. I have run engines where you could not set them up.

Mr. Tollerton: I presume that the driving wheel could be small enough, so you could not set a wedge up on the outside.

Mr. Burgess: That is the point I wanted to bring up?

Mr. Tollerton: I presume that may be the case, although I have never seen the locomotive, Mr. Burgess, and we have got seventeen hundred of them on our railroad. All of them can be set up from the outside.

Mr. Sheean: At the present time, you do relieve on the Rock Island all of your pooled engines?

Mr. Tollerton: Yes, sir, that is the way the schedule reads.

Mr. Sheean: But upon your branch lines, or on your assigned, where your engines are assigned, you still require, at certain places, wedges to be set up?

Mr. Tollerton: Yes, that is the schedule?

Mr. Sheean: Now, on this part of Article 14, I understood you to say that you do not think that it would be possible to let an engine watchman take the responsibility of setting up wedges.

Mr. Tollerton: I would not permit it.

Mr. Sheean: And the mere fact that a roundhouse is maintained—I take it that on some of these branch lines, a roundhouse may house one or two engines.

Mr. Tollerton: Oh, yes.

Mr. Sheean: And the roundhouse force consists, perhaps, of one or two men who build the fires and put on the coal and

run the pump, and everything else, and that is the only roundhouse force that you have at that point?

Mr. Tollerton: That is correct.

Mr. Sheean: Is that man who runs the pump and puts on the coal, ordinarily a man with whom you would trust the duty of setting up wedges?

Mr. Tollerton: No.

Mr. Sheean: But you do, at the present time, where a man is assigned on any of these runs, three hours a day and paying ten hours for it, require him to set up his wedges?

Mr. Tollerton: Yes.

Mr. Sheean: What about the other proposition, filling grease cups? That is in this same article; where engineers and firemen are required to place on or remove tools or supplies from locomotives, fill lubricators, flange oilers, headlights, markers or other lamps, they shall be relieved of such service at all points where roundhouse shop force or an engineman is employed. What have you to say as to that part of that article, in the situation of the Rock Island and other roads similarly situated?

Mr. Tollerton: Speaking of the lubricator and asking to be relieved of filling the lubricator, in my judgment, it is just as important for the lubricator to be working properly at all times, for the successful operation of the locomotive, as it is to open the throttle. The only ones capable of caring for that lubricator properly, are the engineer or fireman. A lubricator should be taken care of, while the engine is warm, either filled so it can be blown out under steam, and have the assurance of its proper working—a lubricator that is not working might cause serious injury and damage to the locomotive, by cutting the cylinders or valve packing, making it impossible to perform a successful trip. There are no other employes connected with the roundhouse, capable of properly taking care of a lubricator, like the engineers and firemen. That is one of the duties that they should have.

Mr. Sheean: Do you, on the Rock Island, also require the fireman to fill markers or classification lamps?

Mr. Tollerton: We do. Our rules show. They have been relieved of every other duty except filling the classification lamps.

Mr. Sheean: What do you mean by the classification lamps?

Mr. Tollerton: Well, it is a lamp that goes on the sides of the smoke arch, to indicate their classification when they are on the road.

Mr. Sheean: What do you mean by classification?

Mr. Tollerton: Whether an extra, or first section, or what it is, it is indicated by the lamp.

Mr. Sheean: And is it important that proper classification lamps should be displayed?

Mr. Tollerton: Oh, absolutely.

Mr. Sheean: And that duty you require the fireman to perform, filling the classification lamps?

Mr. Tollerton: We do that, for this reason: that the proper display of signals is essential to the safe operation of the railroad and the filling of the classification markers, if a man fills it himself, he knows it is filled.

Mr. Park: Mr. Tollerton, if a train was carrying green classification signals on the front end of the engine, a train of superior right, and a train of inferior right on the side track should fail to observe them, or they should have gone out, what would be the consequences?

Mr. Tollerton: Well, it would cause a serious accident, of course—collision.

Mr. Sheean: You say that as to the other things in this part of Article 14, removing tools or supplies from locomotives, the Rock Island has already relieved both the engineer and fireman?

Mr. Tollerton: Yes.

Mr. Sheean: On branch lines, too, and smaller engines?

Mr. Tollerton: Yes, I think they are relieved of all those duties.

Mr. Sheean: What about the filling of lubricators?

Mr. Tollerton: The Rock Island enginemen fill the lubricators. They are not relieved of that.

Mr. Sheean: They are not relieved of that?

Mr. Tollerton: No.

Mr. Sheean: And you have given the reasons why you think they should fill the lubricators?

Mr. Tollerton: Yes.

Mr. Sheean: Do you think it makes for the safety of the handling of the machine and prevents serious damage to it?

Mr. Tollerton: Oh, absolutely. The successful completion of a trip depends on the proper working of the lubricator. If it did not work, they would have to stop; they could not run over the road.

Mr. Sheean: And in practice, you think that the engine crew itself should be the ones to fill the lubricator?

Mr. Tollerton: They are the only experienced ones that should fill them.

Mr. Sheean: Outside of the classification lamps or markers, I think you said the rest of this, care of headlights, they have no responsibility as to that?

Mr. Tollerton: No.

Mr. Sheean: Even on the branch line, where you have one engine running day and night, you cannot make your fireman do anything with a headlight?

Mr. Tollerton: No, they are relieved of all that.

Mr. Sheean: Now, the preceding paragraph of this Article 14, we did not fully complete, Mr. Tollerton; been jumping around on this. Does that bother you, to turn from one thing to another?

Mr. Tollerton: No, not at all.

Mr. Sheean: The setting up of wedges you have discussed here. What about the filling of grease cups?

Mr. Tollerton: We have relieved, I think—I think the enginemen have been relieved of that duty. As far as our line is concerned, they have.

Mr. Sheean: But on the setting up of wedges, you think that that should be limited in the same manner that it is on the Rock Island, or some similar manner, so as not to be of universal application?

Mr. Tollerton: Oh, absolutely. I think this rule of filling grease cups is not a general rule. There are lines, no doubt, and runs that are so short, and you being unable to get any more time from the man, that it would be right and proper to expect him to perform that additional work for the railroad company. That is the application of these general rules that relieves the man on the small run, just the same as the man on the big run.

Mr. Sheean: Now, this Article 15 makes provision for offi-

cial record of weights on drivers, Mr. Tollerton. What are you going to do about this situation, where you are putting on these superheaters and changing the weight of your engines? Are you fixed in such a way on the Rock Island that you can actually ascertain the weights on drivers of these engines?

Mr. Tollerton: No. And there are no other railroads in the West, with possibly one exception, where they could accurately weigh a locomotive.

Mr. Sheean: Well, now, tell us why?

Mr. Tollerton: Railroads, of course, are equipped with track scales. These scales are 40 to 45 feet long; capacity approximately 100 tons. You take a modern locomotive—the Mikado, we will discuss—has four pairs of driving wheels, a trailer, and an engine truck. Part of the weight of the driving wheel is transferred to the trailer truck by means of an equalizer. Part of the weight on the engine truck is transferred from the forward driving wheels by means of an equalizer. The length of rigid wheel base from the center of the forward driving wheel to the center of the rear driving wheel is approximately 17 feet on the modern Mikado engine. The track scales, being 40 feet long, you could not possibly get the driving wheels on the track scales without bringing onto the track scales either the truck wheels or the engine truck wheels. Now, assuming that you could get the driving wheels on, you have still got part of the equalized weight that is carried on the trailer trucks.

We had some amusing experiences trying to weigh some locomotives on our line. We never got within six thousand pounds of the same weight, and we gave it up.

Mr. Sheean: How did you try to bring about the weighing, these experiences that you speak of? How would you do the weighing?

Mr. Tollerton: We would run it on one end of the scales and get one weight, and then we would run it on the other end of the scales and we got another weight; and then we stopped in the middle of the scales and we got another weight.

Mr. Sheean: And that was in the effort to get the weight on drivers, was it?

Mr. Tollerton: Yes. It was not in connection with this movement, you understand, but it was in connection with check-

ing the builders' weights. We thought we could check the builders' weights, and we could not.

Mr. Burgess: What weight did you accept, Mr. Tollerton?

Mr. Tollerton: We accept the builders' weights. They are the only ones who can accurately weigh a locomotive. They have a system of scales that carry each driving wheel separately and weigh simultaneously. They can either get the weight on one pair of wheels, two pairs of wheels, three pairs or four pairs, and it is the only practical way of weighing an engine. It would be absolutely impossible to comply with this rule of weight on drivers, unless the men accepted the published weights given by the railroads.

Mr. Park: Mr. Tollerton, what would be the result then of a rule of this kind as to discussions and contentions in the service as to the weight on the drivers? Would there not be a constant turmoil and strife over it?

Mr. Tollerton: Oh, absolutely. As I have just said, it would be impossible to check it, and of course it would be a matter of constant irritation. The company would claim one thing; the men would claim another, and there is no way of proving it.

Mr. Burgess: You could not get the builders' weights?

Mr. Tollerton: Yes, the builders' weights. I turned over to Mr. Stone all of our weights, every one of them. But you see these weights are going to change.

Mr. Burgess: You estimated about 4,000 pounds, didn't you, for the addition of these improvements?

Mr. Tollerton: For the superheater, and about 1,000 pounds for the others. That, of course, may vary a few pounds, but not much.

Mr. Sheean: And even on a conservative estimate of 4,000 pounds change there in this Western territory, you say there would be over 2,000 engines?

Mr. Tollerton: Yes.

Mr. Sheean: Which would take a higher rate, because of superheaters being added, than the engines now take without that labor saving device on it?

Mr. Tollerton: That is correct.

Mr. Byram: Mr. Tollerton, as I understand it, the practice pretty generally obtains now of determining the rate of pay of engineers on a cylinder basis. Is that right?

Mr. Tollerton: Yes, generally, I think; although I believe there are some roads that pay on driving wheel basis.

Mr. Byram: I am speaking now of the general practice?

Mr. Tollerton: Yes.

Mr. Byram: That prevails generally in this territory?

Mr. Tollerton: Yes, that is true.

Mr. Byram: Now, is there any doubt about the size of the cylinders of a locomotive?

Mr. Tollerton: Any doubt?

Mr. Byram: I mean, is there any difficulty in ascertaining exactly the diameter of a cylinder?

Mr. Tollerton: Absolutely none, if you have a rule.

Mr. Byram: Anybody can do that?

Mr. Tollerton: All you want is a two-foot rule.

Mr. Byram: So that, as between the weight on drivers basis, which fluctuates as you have described by the application of appliances, or taking them off, or different things, changes after the locomotive leaves the builder's hands, and size of cylinders, if there is any dispute about the size of cylinders, assuming that the present practice continues, that is a matter easy to determine?

Mr. Tollerton: Very quickly, and without practically any expense, whatsoever.

Mr. Byram: Is there usually a fairly well fixed ratio between the tractive effort of a locomotive and the size of cylinders?

Mr. Tollerton: Yes.

Mr. Park: And the weight on drivers.

Mr. Tollerton: Yes. The size of your cylinder is one of your important determining factors in what the locomotive will do.

Mr. Byram: Then, is there any reason to criticise the accuracy of the present method of determining the amount of work performed by engineers and firemen on the cylinder basis, which prevails generally?

Mr. Tollerton: Oh, absolutely no.

Mr. Byram: In your opinion, is there any good reason for a change?

Mr. Tollerton: None whatever, and the surrounding rules

that exist on the railroads now, and were built up on this basis of rates of pay, are the governing factors.

Mr. Byram: Then the effect of changing from a cylinder basis to a tractive effort basis, or, rather, a weight on drivers basis, would be, in your opinion, to complicate rather than to simplify the method of arriving at the rate of pay that ought to apply on a locomotive?

Mr. Tollerton: Very much so.

Mr. Byram: Is that what you are endeavoring to bring out here by your testimony?

Mr. Tollerton: Well, I am merely trying to state facts.

Mr. Byram: I understand, but you are giving it as your opinion?

Mr. Tollerton: Oh, yes, entirely so. I think that the cylinder basis for rates of pay is just as satisfactory and exists on more miles of this territory than the weight on drivers basis, and to swing from one to the other, with all of the surrounding rules which remain, intact, due to their saving clause in their contract, would be absolutely suicide for some of the railroads, our own railroad, for instance.

Mr. Byram: Do you think there is any injustice in using the cylinder basis, which is the present practice prevailing generally, to determine the rates of pay of firemen and enginemen? In other words, is the present cylinder basis, which is, as you have said, one of the most important factors in determining the tractive effort of a locomotive, as fixed a factor as would be the weight on drivers if we should change?

Mr. Tollerton: More so, or just as much.

Mr. Byram: More fixed?

Mr. Tollerton: Yes.

Mr. Byram: And in your opinion, the present practice of determining the rates of pay by the size of cylinders works no injustice to the enginemen. Is that right?

Mr. Tollerton: For the reason that the rules have been built up on the individual railroads surrounding their method of compensation. There should be no change from one to the other, cylinders to weights on drivers, without changing the rules surrounding it on the different railways.

Mr. Byram: As I understand you, then, there would be less opportunity for the changing character of the basis for

determining pay of the engineers and firemen by continuing the present practice of cylinder basis than if we changed to the weight on drivers, which does fluctuate?

Mr. Tollerton: Yes.

Mr. Byram: The size of cylinders does not change?

Mr. Tollerton: The size of cylinders does change slightly, of course, due to the wear of the cylinder. The majority of railroads permit a half inch further wear of the cylinder before bushing it back to the original size, but it is merely the wear, that is all.

Mr. Byram: Does the rate of pay change in the process of the wear?

Mr. Tollerton: Oh, no.

Mr. Byram: If a cylinder originally, for instance, was 18 inches in diameter, and wore to be 18½ inches, there is no change at present in the rates of pay?

Mr. Tollerton: No.

Mr. Byram: The payment is still based on an 18-inch cylinder?

Mr. Tollerton: That is it.

Mr. Byram: And you think that is the fairest way to determine the rate of pay of engineers?

Mr. Tollerton: Oh, absolutely.

Mr. Park: Mr. Tollerton, how do you figure the tractive power of a locomotive?

Mr. Tollerton: Well, your tractive effort is determined by the main effective boiler pressure; by the cylinder diameter square; by the piston stroke in inches, divided by the driving wheel.

Mr. Park: All three factors enter into the tractive power?

Mr. Tollerton: Yes.

I wish to call attention to another thing about the inaccuracy of the weight on drivers basis. The amount of work a locomotive can do is generally based on what it can start in tons, and that is tractive effort. Two locomotives of identically the same weight on drivers may be vastly different in tractive effort, due to difference in the diameter of the driving wheel, every other proposition being identical. So you see a weight on drivers basis would not be anything to work to.

Our railroad might have a locomotive weighing 225,000

pounds on drivers, with a 63 inch driving wheel; the North Western might have identically the same locomotive, the same weight on drivers, with a 56-inch driving wheel; tractive effort different; starting effort of engine different; the work the engine will perform different. And so it goes.

Mr. Byram: Have these men heretofore usually advocated a cylinder basis for determining the rate of pay in their negotiations?

Mr. Tollerton: Of course, the Rock Island pays on the cylinder basis.

Mr. Byram: How did they arrive at that basis?

Mr. Tollerton: That, of course, is arrived at through mutual consideration, but it is of long standing. I could not tell you the history of it.

Mr. Byram: Originally was it a matter of negotiation between the railroads and the men?

Mr. Tollerton: Oh, absolutely, yes.

Mr. Byram: And must have been at one time satisfactory to the men?

Mr. Tollerton: It is yet, to the best of my knowledge.

Mr. Byram: It is yet?

Mr. Tollerton: Yes.

Mr. Byram: Then the change here would be of no benefit to the men unless it raised the rate of pay of some engines that are now paid a lower rate on a cylinder basis.

Mr. Tollerton: That is the idea.

Mr. Sheean: Mr. Tollerton, when you said the cylinder was as fixed a factor as the weight on drivers, if I followed you correctly, a little while ago here, in the case of the superheater you have both larger cylinders and greater weight on drivers, but a reduction in the work of the fireman in both those cases?

Mr. Tollerton: I didn't say anything about larger cylinders, did I?

Mr. Sheean: I thought you said a little while ago that ordinarily upon a superheater engine, in connection with the superheater there would be a larger cylinder on the superheater than if you did not have the superheater?

Mr. Park: I asked him that question, and he said no.

Mr. Sheean: Oh, I misunderstood you.

Mr. Tollerton: I did not say that.

Mr. Sheean: I thought you said in a re-equipment with a superheater that a larger cylinder would be necessary.

Mr. Tollerton: I will say, however, since you bring up the point, that on many of the railroads that have bad water conditions and a low steam pressure is desirable, they have enlarged the cylinder, to maintain the tractive effort. I will say that. But your question, as implied, was that if we superheated an engine we enlarged the cylinder. We do not.

Mr. Sheean: I was under the impression that that was what you said.

Mr. Park: Then, if an engine carries 200 pounds of steam, and you want to reduce that to 175, you would increase the size of the cylinders to keep the balance?

Mr. Tollerton: Assuming that you want to maintain the same tractive effort, you would have to do that. That got to be a prevailing custom in the West, where the bad water exists. They lower the steam pressure and enlarge the cylinder, where it is practical to do so.

Mr. Byram: In that respect, then, the cylinder basis for determining pay would be beneficial to the men, because the cylinder would be enlarged, and a higher rate of pay go with it?

Mr. Tollerton: I think that follows entirely on your 25-inch cylinder, 24 inches or over, I believe.

Mr. Sheean: Well, Mr. Tollerton, now, are you going to measure this horse power that you speak of as being the true measure of the work that is done by the engine, and I think you said when you measured the work done by the engine you also measured the work done by the fireman, in the matter of coal?

Mr. Tollerton: Yes.

Mr. Sheean: Do horse power and coal consumption go along together?

Mr. Tollerton: Yes, hand in hand. As I said before, tractive effort decreases with speed; horse power energy increases. The work of the fireman is based on the amount of horse power developed by his engine, because horse power consumes coal. Tractive power does not consume coal.

To show the economies effected by superheaters, the American Locomotive Company in their circular No. 1017, of January, 1914, in speaking of the economies in locomotive designing, state:

"That the boiler may be proportioned 23 per cent less when using superheated steam, over saturated steam."

In other words, developing identically the same energy you can make a boiler with 23 per cent less evaporating heating surface.

To carry it further, speaking of horse power:

"With saturated steam a horse power requires four pounds of coal. With superheated steam it becomes four pounds less 20 per cent, or 3.2 pounds of coal per horse power hour."

There is your reduction in fuel, based on the builder's calculations on locomotive designing, and it shows the less amount of coal that it is necessary for the fireman to show to produce a horse power for one hour; and it is horse power that moves cars, moves tonnage at speed. Tractive power only starts tonnage.

Mr. Byram: Mr. Tollerton, do you remember Mr. Lauck's testimony, wherein it was shown by one of his exhibits that the number of tons of coal shovels per $1,000 paid firemen, was less in 1913 than it was in 1909?

Mr. Tollerton: Well, I remember something about that. I was here during the testimony, but I do not recall the exact point to which you are referring.

Mr. Byram: I am reading, now, from pages 2418 and 2419, of the record. After some discussion with Mr. Lauck on that subject, Mr. Sheean asked this question:

"If, during this time, in addition to the actual increase in money—this is merely money—and if in addition, during this time, there have been improvements in the way of automatic stokers, automatic fire doors, sloping tanks, provisions for breaking coal to proper size for firing, automatic shakers, power coal pushers, and other things, that would simply show that not only less coal was consumed, but it was done with less physical effort, would it not?

"Mr. Lauck: If that could be shown, yes, sir; but I do not know anything about that."

I understand from your testimony, Mr. Tollerton, that you are asserting that these labor-saving devices, and coal-saving devices, have been introduced quite generally, as asked in Mr. Sheean's question?

Mr. Tollerton: Oh, yes; that is true.

Mr. Byram: If these improvements, especially in coal-saving devices, have been introduced to some extent, would that, in your opinion, tend to produce the result about which this discussion took place; that is, that less coal was shoveled per $1,000 paid firemen in 1913 than was paid in 1909?

Mr. Tollerton: In my judgment there is no question of that. Of course I have no figures right before me to substantiate it.

Mr. Byram: I will read you some figures from the exhibit of the other side. On page 2417 of the record, question by Mr. Sheean:

"And, taking the basic tables which you make use of here, for these roads, taking your own basic tables, as to tons of coal, it would seem that in the year 1909 the tons of coal consumed were 15,140,994, for which the firemen received $6,651,373. In 1913, on the same roads, the total coal consumed was 19,136,488 tons, for which the firemen received $8,774,150. Dividing the tons of coal per $1,000 of compensation, it would seem that in 1909 these railroads, for each $1,000 paid their firemen, were having shoveled or consumed 2,280 tons, while in 1913 there were being shoveled for each $1,000 of compensation paid firemen, 2,180 tons; or that in 1913 the firemen were shoveling 100 less tons per $1,000 than they were in 1909. I think you said this morning that that was a fairly accurate way of ascertaining whether or not the increased compensation had adequately kept pace with the increased work.

"Mr. Lauck: I am at a loss to understand that."

Those are the figures that I have been talking about.

Mr. Tollerton: I think that statement is correct. Firemen generally are not performing as much physical labor now in running an engine mile or a ton mile on the modern locomotive as they were on the locomotive of smaller and older type.

Mr. Byram: Do you think these coal and labor saving devices that you have been describing contribute toward that result, the result shown by these figures?

Mr. Tollerton: No question about it. I will say further, locomotive designing today, there is a more generous proportion of fire box heating surface; the introduction of the Mikado locomotive, that permits a better fire box design, on account of the trailer truck. The builders today figure the fuel composition,

per square feet of grate area, about 120 pounds of coal for the modern locomotive. With the older type, narrow fire box locomotives, they had to get combustion on 220 pounds of coal per square foot of grate area. That shows, of course, a vast improvement in combustion. They get more heat energy out of the fuel, per foot of grate surface.

Mr. Sheean: You talk about a ton and pounds. About what are the dimensions of a ton of bituminous coal, in this section?

Mr. Tollerton: You take a ton of soft coal, not a cube, just lumps, it will be three and a half foot square, three and a half foot this way, three and a half foot over there (illustrating), and three and a half feet up.

Mr. Sheean: That is a ton of coal?

Mr. Tollerton: That is broken coal.

Mr. Sheean: About what is the size of the ordinary scoop, used in shoveling coal?

Mr. Tollerton: I think a No. 5.

Mr. Sheean: How many pounds of coal is there in the No. 5 scoop?

Mr. Tollerton: Between fifteen and sixteen pounds—fifteen pounds, I would say.

Mr. Sheean: So that the number of scoops to a ton is easily ascertained?

Mr. Tollerton: Oh, yes; easily.

Mr. Sheean: Now, as to this division or jump, on weight on driver basis, Mr. Tollerton, I think you have already stated, in response to Mr. Byram's question, that in order to go to a tractive effort basis, or a weight on drivers basis, it would be necessary to reconstruct the schedules, which are built on a cylinder basis, so as to make the one fit into the other.

Mr. Tollerton: Absolutely, yes.

Mr. Sheean: That can be done, in case parties are willing to approach it so as to make a schedule consistent with the weight on drivers basis?

Mr. Tollerton: I would say so; locally they could get together and settle anything.

Mr. Sheean: And collectively, if they are willing to have built up, rules which fit into the weight on driver basis, and not

inconsistent, eliminate all rules which run into each other, it is not impossible to go from one basis to the other?

Mr. Tollerton: I would say not, but the surrounding rules would have to fit in with the change in the method of payment.

Mr. Sheean: Now, you spoke a little while ago, Mr. Tollerton, of certain observations having been made. What, in a general way, were the purpose of those observations?

Mr. Tollerton: The purpose of the observations was to determine about the percentage of time a fireman was engaged in supplying coal from the fire box. In article 13 of this request, the following appears:

"Two firemen. On coal burning locomotives weighing 185,000 pounds or more on drivers, when used in freight service, two Firemen will be employed."

It was, of course, investigation along the line to determine what the firemen were actually doing.

Mr. Sheean: On engines of that type and class, that would call for the two firemen?

Mr. Tollerton: Yes. There were two sets of test observations made, one made about February and March of last year—

Mr. Sheean: Taken on about how many different roads?

Mr. Tollerton: About twenty different roads, parties to this movement, and there was some—wait just a moment—there were some 1,556 trips made.

Mr. Sheean: Then the second set of tests were made?

Mr. Tollerton: Yes; there was a second set of tests made in September and October of last year.

Mr. Sheean: The second set being on engines above 185,000 pounds on drivers?

Mr. Tollerton: Engines in freight service, burning coal, weighing 185,000 pounds and over on drivers.

Mr. Sheean: And was any effort made to separate as between those having different equipment, or were the observations made on engines above 185,000 pounds, with notation as to how equipped?

Mr. Tollerton: The observations in the fall were all taken on locomotives weighing over 185,000 pounds, burning coal, in freight service.

Mr. Sheean: And on how many different roads?

Mr. Tollerton: Sixteen, I believe. I have it here. I can give it to you accurately.

Mr. Park: Who made the observations?

Mr. Tollerton: Practical locomotive engineers, in the employ of the company that reported on the test.

Mr. Park: Were the engineers taken out of the service for that service?

Mr. Tollerton: No, generally the road foreman, traveling engineers, but all practical locomotive engineers.

Mr. Sheean: What were the roads covered, Mr. Tollerton, in which these observations were taken?

Mr. Tollerton: The observations on locomotives in freight service, burning coal, weighing 185,000 pounds and over on drivers, were taken on the following railroads: Atchison, Topeka & Santa Fe; Canadian Pacific; Chicago, Burlington & Quincy; Chicago, Milwaukee & St. Paul; Chicago, Rock Island & Pacific; Chicago, St. Paul, Minneapolis & Omaha; Chicago & North Western; Denver & Rio Grande; Great Northern; Illinois Central; Kansas City Southern; Missouri, Kansas & Texas; Missouri Pacific; Oregon Short Line; St. Louis & San Francisco, and Union Pacific.

The Chairman: We will take a recess.

(Whereupon, at 12:30 o'clock p. m. a recess was taken until 2:30 o'clock p. m.)

After Recess.

W. J. TOLLERTON was recalled for further examination and having been previously sworn, testified as follows:

Mr. Sheean: Mr. Tollerton, you enumerated this morning certain devices in use on a modern locomotive that effected economies, some of them accomplishing a double purpose of relieving men from work and economizing in other ways. Now, in modern locomotive building, are there devices put on for the sole purposes of relieving the work of the engineer and fireman?

Mr. Tollerton: Yes.

Mr. Sheean: Well, take a modern locomotive, any of those recently bought by the Rock Island Company, about how much is spent by the company for devices which have no purpose other than to relieve the engineer and fireman from work?

Mr. Tollerton: I think a conservative estimate of the extra cost put on a new locomotive which does not in any way improve or increase the efficiency of the locomotive, put on entirely to save the engineer and fireman labor, would amount to $1,000 per engine.

Mr. Sheean: Now, what are some of the items?

The Chairman: Is that in the nature of a continuing expense to the company?

Mr. Tollerton: No, only in its maintenance afterwards.

The Chairman: In the question of maintenance after you put it on?

Mr. Tollerton: Yes; but the last locomotives purchased for our line, which were eighty-five, these refinements were put on, aggregating about $1,000 per engine, over the base price without the refinements. This would amount to a total of $85,000, or about the price of four locomotives. In other words, the Rock Island gave up four locomotives in that purchase of engines, for the refinements that were put on to relieve the engineer and fireman of work.

The Chairman: Then it is your idea that that constitutes an operating charge on the company which should be taken into consideration when we come to pass upon the question as to the wages to be paid to employes.

Mr. Tollerton: Yes, in relieving them from physical work.

Mr. Sheean: What are these devices that you say constitute this additional expense to these eighty-five engines that you are speaking of now?

Mr. Tollerton: The outside valve gear.

Mr. Sheean: What purpose does the placing of the valves on the outside have, other than to relieve the engineer and fireman?

Mr. Tollerton: It has no purpose, and does not improve the engine efficiency in any way.

The Chairman: Well, will you kindly explain what that is?

Mr. Tollerton: As I said this morning, the older type of locomotives had the eccentrics underneath the engine, attached to the main axle. It was necessary for the locomotive engineer to go under the engine, in the event of an eccentric becoming loose in the axle; it was necessary for him to give it care and attention. With this improvement he gets at everything from

the outside, or the ground, standing on the ground. That is a $350 extra charge on a new locomotive; on an old locomotive already in service, on which a great many railroads are putting the outside valve gear on in their shops, it represents a shop of $800.

The Chairman: Now, you say that relieves an engineer from performing certain duties that he would otherwise be required to perform?

Mr. Tollerton: Yes.

The Chairman: Was it put on the engine with that view?

Mr. Tollerton: It was put on the engine with that view, and also motive power officers, designing locomotives, realized that the engine today must be so designed as to make it practically failure proof. Everything must be accessible. The enginemen having been relieved of so many duties, compels the motive power officers to spend this extra cost on a locomotive to bring this situation about.

Mr. Sheean: Now, what are some of the other devices placed on these last locomotives, that were not on the other locomotives?

Mr. Tollerton: The pneumatic fire door opener cost $100 extra.

Mr. Sheean: That difference in price for having them so equipped was for the pneumatic fire door?

Mr. Tollerton: Absolutely.

Mr. Burgess: May I ask a question there, Mr. Sheean?

Mr. Sheean: Certainly.

Mr. Burgess: Did I understand you to say the outside valve gear was put on for the purpose of relieving the engineer?

Mr. Tollerton: That was one of the reasons; and I qualified it further, Mr. Burgess.

Mr. Burgess: Did any committee of engineers ever request that the Walschaert valve gear be placed on the engines?

Mr. Tollerton: No, but the engineers preferred it.

Mr. Burgess: I understood you to say this morning that you had charge of the designing of locomotives?

Mr. Tollerton: That is true.

Mr. Burgess: If you designed a number of locomotives to be purchased by the Rock Island Company and the engineers

objected to the Walschaert valve gear, would you change the design?

Mr. Tollerton: Unless we changed our rules in a way that would assure me that the locomotive engineer would look after the eccentrics under the engine.

The Chairman: Let me see if I understand this exactly. It not infrequently occurs in traveling that they are unable to move the engine, and I have heard them say, in reply to my inquiry as to what the trouble was, that it was due to the fact that the eccentric was out of order. I do not know whether they gave me a correct answer or not. Has that something to do with the operation you have been describing?

Mr. Tollerton: That is just what we were discussing now, Mr. Chairman.

The Chairman: So that if the wheels stop in a certain position, as I understand it, and this eccentric is not working, it is impossible to start the engine without some effort on the part of the engineer and fireman?

Mr. Tollerton: It is quite frequently necessary to pinch them off center with the pinch bar.

Mr. Park: That is, if they slip the eccentric?

Mr. Tollerton: Yes.

The Chairman: I have been held several times on account of that, and I was anxious to know what was the determining cause of it. In addition to relieving the engineer and fireman, was it also the purpose of the company to get an arrangement by which that difficulty could be avoided?

Mr. Tollerton: Not entirely. New locomotives are built today with the eccentric motion just the same as it was years ago.

The Chairman: I notice the C. & O., I believe it is—this new road we were talking about the other day—is equipped with this new arrangement, and an engineer on that road told me, when I was inquiring about it casually, that a good deal of time and trouble was saved on account of that new device. Is that correct?

Mr. Tollerton: Yes, sir. The liability of failure of the valve motion is greatly reduced. That, of course, relieves the engineer of that responsibility while the engine is in his charge.

The Chairman: I do not know whether it is so on the

northern roads or not, but I know that in the South we are detained quite frequently on account of that very thing.

Mr. Tollerton: This new arrangement for which the companies pay this extra money reduces that to a minimum.

Mr. Burgess: That is also an advantage to the company, is it not?

Mr. Tollerton: I cannot see any advantage at the present time.

Mr. Burgess: Then, can you give us any idea why railroads adopt the Walschaert valve motion that are not parties to this Arbitration?

The Chairman: What was that question, Mr. Burgess?

Mr. Burgess: I asked Mr. Tollerton if he could give us any idea why railroads have adopted the Walschaert valve motion who are not parties to this Arbitration.

Mr. Tollerton: Of course you would have to see the local rules applying to the enginemen on that particular road.

Mr. Burgess: But if the rules were just the same?

Mr. Tollerton: If the rules were just the same in what way?

Mr. Burgess: Pertaining to the duties of engineers; if they were just the same as the rules that apply on the Rock Island?

Mr. Tollerton: I would say that they were taking a great many chances in having engine failures, if the rules were the same as those that apply on our line.

Mr. Burgess: Yes; but if the rules pertaining to engineers on another railroad were similar to the rules governing engineers on the Rock Island, pertaining to their duties as engineers, and the superintendent of motive power, together with the other officers, adopted the Walschaert valve motion as the standard, roads that are not parties to this Arbitration, would you say that was chargeable to the engineers on that particular road?

Mr. Tollerton: Of course that is a local situation of which I would not be capable of answering here.

Mr. Burgess: Are you willing, as superintendent of motive power, to admit or acknowledge that the Walschaert valve motion is put on locomotives purely as a labor-saving device for the engineers and the firemen?

Mr. Tollerton: Entirely. It saves that labor.

Mr. Burgess: And it is installed for no other purpose than in consideration of the engineers and firemen?

Mr. Tollerton: Oh, yes; it is installed to minimize the failures of which the Chairman just spoke a few moments ago.

Mr. Burgess: Then the minimizing of failures would be an advantage to the railroad as well as to the engineers and firemen?

Mr. Tollerton: Only in so far as the motive power officers realize the care that the engine is given en route by the engineers and firemen then on the engine.

Mr. Burgess: Thank you.

Mr. Nagel: It would be a very happy thing if you found that it improved conditions for both the railroad and the engineers and firemen?

Mr. Tollerton: Yes; but the railroad companies spend money to bring that about.

Mr. Nagel: That is proper enough, is it not?

Mr. Tollerton: It is an improvement in locomotive construction.

The Chairman: But had they lost any money in the past, before adopting these particular methods or devices, on account of delays in making trips? Have they incurred loss on that account?

Mr. Tollerton: They have incurred the loss due to engine failures, from failures of the eccentrics or parts, making it necessary for the engine to set out a train or part of a train.

Mr. Sheean: Mr. Tollerton, were these outside valves put on in view of an arbitration proceeding here? Is there any particular significance as to the roads being in arbitration, having them, while other roads do not have them, or are you simply describing the general development?

Mr. Tollerton: Describing the general development.

Mr. Sheean: Now, what is the next of these devices in these last engines?

Mr. Tollerton: The power reverse gear; costs $250 extra on a new locomotive; considerably more on an old locomotive.

The Chairman: Please tell us what that is.

Mr. Tollerton: In reversing a locomotive, the reverse lever is in the cab. It is connected by a reach rod to the

tumbling shaft, which operates the links. It is necessary for the engineer to exert considerable pull at various times, on the lever, moving it forward. The power reverse gear operates by power, and with a very small lever in the cab, that he can very readily move with one hand, it does the same work that he formerly had to get his foot braced and pull this way (illustrating).

Mr. Sheean: And on these eighty-five engines that you speak of, what is the tractive effort of the man in throwing over that reverse gear?

Mr. Tollerton: None whatever; requires no exertion on his part.

Mr. Sheean: And those locomotives could be operated with the old style reverse?

Mr. Tollerton: Yes, and are on some lines.

Mr. Sheean: The additional expense of having this power reverse gear is $250?

Mr. Tollerton: Yes, sir.

Mr. Park: How much did you say this cost?

Mr. Tollerton: $250 extra.

The Chairman: What particular function does that perform in the way of minimizing the amount of labor done, or economy as to the operation?

Mr. Tollerton: I suppose I can describe it better by illustration of an engineer on a high speed passenger engine. In approaching a station, where he is going to stop, he shuts off his throttle, takes his brake valve, catches up the train a little bit, and when it is bunched and starting to slow down, he takes his reverse lever where it has been hooked up into a short cut-off, to give the engine speed, and lowers it down in the corner. If the valves are dry, or any other cause, it takes considerable effort to put this lever in the corner. This is entirely done away with, with the power gear. Now, the same thing applies when the engine is running, where it is necessary to hook the lever up, shortening the cut-off. It takes some effort by the engineer to remove the reverse lever. With the power reverse gear, this is entirely taken off him.

The Chairman: Can you control the train better with this arrangement than with the other, insofar as stopping it or starting it is concerned?

Mr. Tollerton: No; the functions of the reversing mech-

anism, unless you want to reverse the engine for any cause at all, which is not good engine practice—I would not say that it has any better control of the engine than the reverse lever.

Mr. Sheean: You can accomplish by power, what was done by the physical effort of the engineer before.

Mr. Tollerton: Yes.

Mr. Shea: How many engines, on the roads in this movement, are equipped with this appliance?

Mr. Sheean: 1,613.

Mr. Tollerton: 1,613 on this report?

Mr. Sheean: According to the report, Mr. Tollerton, out of 457 Mallets, 440 are thus equipped?

Mr. Tollerton: Yes, sir.

Mr. Sheean: Now, Mr. Tollerton, you spoke this morning of a situation—

Mr. Tollerton: Excuse me. Could I interrupt there just a moment?

Mr. Sheean: Surely.

Mr. Totterton: I would like to mention some of the other refinements. I will mention them quickly, and if you desire information on them, you can ask.

The Elvin driving box lubricator costs $70 extra, per locomotive. It does not in any way improve the operation of the engine, any more than the old type, except that it decreases the engineer's labors.

We also have the pneumatic bell ringer. That is a $10 extra; relieves the fireman of the physical effort of pulling the bell cord.

We also have the pneumatic sander, formerly, the locomotive engineer had to pull a lever to open his sand valve. Today, he has got a very small valve that he operates and blows the sand out of the wheels.

Another refinement, by the way, that cost $21 extra. Another refinement is an improved locomotive throttle, that cost $100. This throttle valve, the functions are identically the same as the old type of throttle valve, except that it requires less pull on the throttle valve to open it. It is a more perfectly balanced valve.

These are the items that I have enumerated that do not improve engine efficiency, but decrease the work of the men.

The Chairman: Then, insofar as the company is concerned, an engine without these appliances would be just as efficient?

Mr. Tollerton: Yes.

Mr. Park: Do you make a study of the cab arrangement to suit the convenience of the engineers?

Mr. Tollerton: Yes, and I would like to say along those lines that on the last 85 locomotives that we purchased I put the steam turret outside of the cab.

For the information of the Board, I will say that the steam turret is a small dome. It sets on the boilerhead inside the cab. Radiating from that steam turret are steam pipes that operate both injectors and lubricator, the blower, the air pump, and various other devices. We moved that turret outside the cab and put it on the bulkhead ahead of the cab. We did it simply for one reason: The enginemen having been relieved of the duties incidental to packing any cocks within the cab, we put it outside, so they would not have the inconvenience of a leaky cock en route.

Mr. Park: Are you connecting up the classification lamps with the electric lights?

Mr. Tollerton: We are not. We have all of the cab lamps connected up with the electric lights, but not the classification lamps. The lighting throughout the locomotive is furnished from the dynamo, except the classification lamps, and the reason we don't connect up the classification lamps is the possibility of a failure of them.

Mr. Sheean: The same reason that persuaded you, as you said in answering this morning, to require the engineers and firemen on your road to fill the classification lamps?

Mr. Tollerton: Yes.

Mr. Sheean: Mr. Tollerton, this morning you told us about some change both in rate and also in the necessity of employing two firemen under this proposal, where you changed some engines by putting superheaters on them. I interrupted you, without your completing that illustration of what the facts were as to how many engines were being equipped with superheaters, and what change was effected in it. Will you tell us, please, how many engines would be affected on this one grade that you mentioned, weighing more than 185,000 pounds, after you put

the superheaters on which were less than that without the superheater?

Mr. Tollerton: In that particular group of engines mentioned on our line we have about 175 locomotives.

Mr. Sheean: What is that division?

Mr. Tollerton: The Illinois Division.

Mr. Sheean: And what is the type or series of locomotives that would be affected in this way?

Mr. Tollerton: Well, on the Illinois Division, what we term our 1,600 class engines, they now weigh 182,300 pounds on drivers. By the application of a superheater it would carry them above 185,000 pounds and call for two firemen.

Mr. Sheean: Well, have you recently put a superheater on any of that class of engine?

Mr. Tollerton: Not on that particular type, but I will read you of some superheaters that we applied to a similar type of engine weighing slightly over that on drivers.

We recently, on the Illinois Division of the Rock Island, superheated three Consolidation locomotives. These were of a series of which we have a great number, radically the same, 175, and eventually all of them will be superheated. The three superheated engines, in daily service, running opposite to identically the same engine not so equipped, show a reduction in fuel consumption per locomotive mile of 30 per cent, as follows:

Superheated engines burning 145 pounds of coal per locomotive mile; non-superheated engines burning 214 pounds of coal per locomotive mile. With practically no change in tonnage. There is a slight increase in favor of the superheated engine.

Carrying out this deduction further, we have the following:

The superheated engine is making 14 miles to the ton of coal. The saturated locomotive is making 9 miles to the ton of coal.

On the basis of the proposed rates allowed for under this proposition of the locomotive firemen, the fireman on the superheated engine would receive 47 cents for shoveling one ton of coal, while the fireman on the saturated engine, identically the same, handling the same tonnage, would receive 31 cents per ton of coal.

This shows an increase in the rate of pay for the fireman on a superheated engine over the fireman on the saturated engine, on a basis of a ton of coal shoveled, of 16 cents, or 50 per cent increase.

Now, one thing more that I want to add. That same locomotive would call for two firemen under their new proposition.

Mr. Sheean: That is, taking these 175 locomotives, on three of which you have already put on your superheater, and thereby cut down the coal consumption of the firemen, they would take a higher rate from the fact of your having cut down the coal consumption on them.

Mr. Tollerton: Yes.

Mr. Sheean: Then, in addition to that, because of the fact that it had a superheater on it, and thereby went above 185,000 pounds, under their proposition you would have to have two firemen on the engine which was consuming the least coal?

Mr. Tollerton: That is true on another series of engines.

Mr. Sheean: On another series, where they would come to the break of above 185,000 pounds?

Mr. Tollerton: Yes.

Mr. Sheean: But on these particular engines, the Consolidation, on which these observations were made, they would not, with the superheater added, go as high as 185,000 pounds?

Mr. Tollerton: Yes, they would go above that.

Mr. Sheean: Well, then, why would not—

Mr. Tollerton: They call for two firemen. But you understand on this particular engine that I speak of, they now weigh on drivers over 185,000 pounds. But we have some 175 of the identically same engines, weighing slightly under 185,000, in fact, 182; 300 that would carry over. But these engines with the reduction in work in the fireman, with an increase in his pay, or a superheated engine, would call for two firemen in there.

Mr. Sheean: Now, Mr. Tollerton, under this proposition submitted here, I think you have some mountain grades on your line, haven't you? That is, grades that are 1.8?

Mr. Tollerton: I never discovered it until recently. These locomotives that I am discussing are in daily service between here and Rock Island, the Illinois Division of the Rock Island; the main line, from Chicago to Rock Island, is 181 miles, and

a branch line from Bureau to Peoria, 47.2 miles, and from Rock Island to Peoria, 91.6 miles. All of this mileage is in the seniority rights of the engineers and firemen on the Illinois Division. On the line from Peoria to Rock Island there is a grade of 1.9. Under Article 2 of the proposed schedule in rates of pay the following appears:

"Divisions where grade lines are 1.8. On all divisions where grade is 1.8, and over, an increase of 10 per cent over valley rates shall be paid."

This Consolidation locomotive never runs between Rock Island and Peoria, probably never will run there. The line from Rock Island to Peoria produces about one per cent of the tonnage handled over the Illinois Division. But, under this proposition, all of the engines between Chicago and Rock Island would call for a 10 per cent increase in rates of pay, on account of this 1.8 grade out of Peoria. Or, in other words, 99 per cent of the tonnage of the Illinois Division is moved over the main line, but on account of this one per cent of tonnage, where the engines never will run, it calls for a 10 per cent increase on the entire territory.

Mr. Byram: Where is this? Is this in Illinois, this 1.8?

Mr. Tollerton: Yes, sir, right out of Peoria.

Mr. Byram: In the Mississippi Valley?

Mr. Tollerton: Yes.

Mr. Byram: It isn't in the mountains?

Mr. Tollerton: No, it is in the valley.

Mr. Sheean: Now, have you any other grade of 1.8 or more similarly situated?

Mr. Tollerton: Yes, I find we have a mountain in Missouri, too, on our line.

On the Missouri Division of the Rock Island, between Edgerton and Rushville, a grade of 102 feet to the mile, or 1.96 per cent.

Also between Allerton and Leavenworth, there is a grade of 100 feet to the mile, or 1.9.

Both of these lines are part of the Missouri Division, and the Rushville line handles less than one per cent of the traffic on the Missouri Division. The Leavenworth line considerably less than one per cent of the traffic on the Missouri Division.

However, under Article 2, it would be necessary to pay a differential of 10 per cent on the entire Missouri Division.

Mr. Sheean: Mr. Tollerton, have you that blue print that I saw during the noon hour? I just wanted the Board to get a glimpse of the Rock Island system, which you said consisted of about 50 per cent branch line. I think you called it your density map.

Mr. Tollerton: This is a density chart showing the traffic handled.

Mr. Sheean: Does that show the general situation of the Rock Island system and where these branches are?

Mr. Tollerton: Yes, sir, this shows it, and this will give you an idea of what I have been talking about.

This is the density chart, showing the tonnage handled on that main line of the Illinois Division between Chicago and Rock Island. Here is the branch line that I have been discussing (indicating on chart) where the 1.8 grade occurs.

This shows the difference in the density of traffic (indicating), practically no traffic on this branch here, all of it being over here (indicating). The Missouri Division is carried right along.

Mr. Byram: Where are these Rushville and Leavenworth lines? Are they in the mountains somewhere?

Mr. Tollerton: No, sir; they are right in the Kansas prairie.

Mr. Sheean: Just before adjournment, Mr. Tollerton, you had described a series of tests or observations that had been made, and the railroads on which they had been taken.

Mr. Tollerton: Yes, sir.

Mr. Sheean: From the reports received as to these tests or observations on the different roads, have you caused a tabulation to be made on all of those roads?

Mr. Tollerton: I have.

Mr. Sheean: We offer this summary as Exhibit No. 35.

(The document so offered and identified was received in evidence and thereupon marked "Railroads' Exhibit No. 35, February 4, 1915.")

Mr. Sheean: Mr. Tollerton, will you state, please, the purpose of preparing this summary which has been offered as Exhibit 35?

Mr. Tollerton: The purpose of this illustration was, in a general way, to indicate the amount of time the fireman was engaged in supplying coal to the fire box, the amount of time that he was engaged in any physical labor, and the amount of time that he was performing no physical labor whatever.

Mr. Sheean: On sheet No. 1 you show two tables. Will you explain, please, what table 1 covers?

Mr. Tollerton: Table 1 covers a summary of observations on 1,556 trips on coal burning locomotives, in both freight and passenger service, on twenty representative railroads in this movement.

Mr. Sheean: And during what period were these observations taken?

Mr. Tollerton: These observations were taken during January, February and March, 1914.

Mr. Sheean: Just explain, in your own way, what columns 1, 2, 3 and 4 represent?

Mr. Tollerton: Column 1, Table 1: This represents the average total time on duty, from the time of departure to the time of release from duty. It shows an average total time on duty of eight hours and 47 minutes, and, for the purpose of this illustration, it is shown as 100 per cent.

Column 2, Table 1: This represents the average time, on the 1,556 trips, that the fireman was engaged in supplying coal to the fire box. This was secured by the observers keeping the time the fireman was engaged in performing this work. It shows an average the fireman was engaged in supplying coal to the fire box of 1 hour and 42 minutes, or 19 per cent of the time on duty.

Mr. Tollerton: Column 3, Table 1, represents the average time of the 1,556 trips that the fireman was engaged in performing any manual labor. This was secured by the observers keeping the time the fireman was doing any manual work. It shows, on an average, that the fireman was engaged 2 hours and 42 minutes in performing any physical service.

Column 4, Table 1: Column 4 represents the average time of the 1,556 trips that the fireman performed any physical labor. It shows, as an average, that the fireman was performing no physical labor for 6 hours and 5 minutes, or 69 per cent of the time on duty.

Mr. Sheean: Now, Mr. Tollerton, I note the last two lines of this Table 1 show that the average tons of coal per trip are shown as 8.67 tons, or the average pounds of coal per hour, 1,975.

Mr. Tollerton: Yes.

Mr. Sheean: From your observation or experience, what is your opinion as to whether or not that is well within the limit of physical endurance?

Mr. Tollerton: I would say that the fireman was entirely able to handle twice that amount of coal, and be within his limit or capacity, per hour.

Mr. Sheean: By the way, in that connection, Mr. Tollerton, I think there were referred to, in some of the exhibits here, introduced by the Brotherhoods, tests of continuous firing. What is your knowledge as to those tests or results of tests?

Mr. Tollerton: Oh, I think you can get—they vary. Builders give about 6,000 pounds of coal an hour, as the ability of a man to fire it. That is three times what this calls for here. They vary, however. I would say anywhere around 5,000 pounds of coal.

Mr. Sheean: Outside of locomotive service in the loading or unloading of cars, or the merely physical work of shoveling or unloading coal, not suggesting that it is at all comparable with shoveling it from the tank of an engine, what has your observation been, in that respect, as to the number of pounds or tons of coal shoveled by a laborer, and the usual compensation for the mere coal shoveling?

Mr. Tollerton: Oh, I would say twelve to fourteen thousand pounds an hour, or six or seven tons, unloading from a car.

Mr. Sheean: Have you had any experience at all in contracting for the unloading of cars, or what is paid per ton for doing it?

Mr. Tollerton: Well, that varies slightly. Of course, a man could not keep up that rate that I have just mentioned. You were speaking of an hour's work, weren't you?

Mr. Sheean: You have answered in that way, with this explanation that makes it clear, but under contract, have you had any experience at all in the matter of contracting the unloading of cars by the ton?

Mr. Tollerton: No, I have not had any personal experience, but I am familiar with the prices.

Mr. Sheean: About what are the prices paid per ton, in the way of shoveling and unloading?

Mr. Tollerton: Seven cents, eight cents, and possibly nine cents, but eight cents is the general average.

Mr. Sheean: Now, this Table 1 covers the various classes of service?

Mr. Tollerton: Yes.

Mr. Sheean: Tell us what Table 2 on page 1 represents.

Mr. Tollerton: Table 2 is a summary of observation of locomotive firemen, on 474 trips in freight service, burning coal, made on sixteen representative railroads involved in this movement, on locomotives weighing 185,000 pounds and over, on drivers.

Mr. Sheean: Now, why was the dividing line of 185,000 pounds or over, on drivers, taken?

Mr. Tollerton: The request of the engineers and firemen in this movement, Article 13, reading as follows:

"On coal burning locomotives weighing 185,000 pounds or more on drivers, when used in freight service, two firemen will be employed."

Mr. Sheean: And all of these observations were in freight service, and on engines weighing more than 185,000 pounds on drivers?

Mr. Tollerton: Yes.

Mr. Sheean: Tell us what is shown in the different columns A, B and C, on this table 2?

Mr. Tollerton: Column 1, Diagram A. This represents the average total time on duty, and was computed from the time of departure until the time released from duty. It shows an average total time on duty of 9 hours and 35 minutes, and for the purpose of comparison is shown as 100 per cent.

Mr. Sheean: Then column 2 shows the average time of supplying coal to the fire box, during the trip?

Mr. Tollerton: Column 2, Diagram A, represents the average time of supplying coal to the fire box during the trip. This was secured by the observers of keeping the time the fireman was engaged in performing this work. This shows, as an average, the fireman was engaged two hours and 12 minutes, or 23 per cent of the total time on duty, in supplying coal to the fire box.

Mr. Sheean: Now, columns 3 and 4.

Mr. Tollerton: Column 3, Diagram A, represents the average time the fireman was engaged in performing any manual labor on the trip, and was secured by the observers keeping a record of this work. It shows the fireman was engaged an average of 3 hours and 14 minutes, or 33.5 per cent of the total time on duty, performing manual labor.

Column 4, Diagram A, represents the average time the fireman was performing no physical labor on the trip. This shows, as an average, the fireman was performing no physical labor for 6 hours and 25 minutes, or 66.5 per cent of the total time on duty.

Mr. Sheean: The coal consumption?

Mr. Byram: What was he doing when he was performing no manual labor?

Mr. Tollerton: He was either standing at ease in the gangway, or riding on the seat box.

Mr. Sheean: The explanatory note under that table shows what was to be considered as time engaged in manual labor—the third paragraph, Mr. Tollerton?

Mr. Tollerton: You mean 33.5 per cent?

Mr. Sheean: This explanatory note—was that taken from the instructions which went out to each of the roads that made the test?

Mr. Tollerton: Yes, and shows, of course, how the calculations were made of it.

Mr. Sheean: And, included in the manual labor, according to this, is such work as supplying coal to the firebox, sweeping deck, shaking grates, taking coal and water, and so forth?

Mr. Tollerton: Yes, everything.

Mr. Sheean: According to this table, the average tons of coal per trip, on these large engines, was 12 tons of coal per trip or 2,460 pounds per hour?

Mr. Tollerton: Yes, sir.

Mr. Sheean: You show in Diagram B, on this same Table 2, just what facts?

Mr. Tollerton: Column 1, Diagram B, represents the average time on the road of the locomotive firemen in similar service to the test trip, for a period of 30 days previous to the test. This shows the average time on the road in similar

service during 30 days previous to the test was 8 hours and 38 minutes, and has been shown as 100 per cent. This data was obtained from the train sheets of the train despatchers, on the divisions from which the observations were taken.

Mr. Sheean: Then column 2 shows what?

Mr. Tollerton: Column 2, Diagram B, represents the average time the locomotives were on the road in similar service to that in which the observations were taken, during 30 days of heaviest traffic on the division. This shows the average time on the road as being 8 hours and 54 minutes, and has been shown as 103 per cent.

Mr. Sheean: Then, column 3?

Mr. Tollerton: Column 3, Diagram B, represents the average time on the road of the test trains, and was reported by the observers making the trips. This shows that they were on the road an average of 8 hours and 56 minutes and is shown as 104 per cent.

Mr. Sheean: So that Diagram B was prepared for the purpose of ascertaining whether or not the test runs were fairly representative of the runs in that class of service for 30 days previous to the test and also during the 30 days of heaviest traffic on the division?

Mr. Tollerton: Yes, sir.

Mr. Sheean: And these particular test runs are shown to be 104 per cent, or a little bit longer than the average runs, during the period of heaviest traffic?

Mr. Tollerton: Yes; and also the average 30 days prior to the test.

Mr. Sheean: The third, Diagram C, on this table?

Mr. Tollerton: Column 1, in Diagram C, represents the average gross tons per train for a period of thirty days during the season of heaviest traffic. This shows the average gross tons per train in similar service to that in which the observations were taken as 1,750 tons, and has been shown as 100 per cent. This data was obtained from the train despatchers on the division on which the observations were taken.

Mr. Sheean: And the second column?

Mr. Tollerton: Column 2, Diagram C, represents the average gross tons per train in similar service to that in which the observations were taken, for a period of thirty days pre-

vious to the test. This shows the average gross tons per train in similar service as 1,805 tons, and has been shown as 103 per cent.

Mr. Sheean: I wanted to ask you right there, Mr. Tollerton, how it could be that, during the thirty days previous to the test, the average gross tons per train would be higher than during the period of heaviest traffic on the division?

Mr. Tollerton: Well, during the period of heaviest traffic on a single track railroad, you cannot maintain your tons per train at all times, in a congestion or anything else. You have to sacrifice tonnage to get it moved.

Mr. Sheean: So that the fact that the traffic on the division may be the heaviest at a certain time, does not mean that the tonnage per train is the heaviest during that time?

Mr. Tollerton: Oh, no. When your business is the heaviest it might consist of fast stuff—fruit, stock, anything of that kind. and your tonnage then drops down.

Mr. Sheean: And this table, or diagram, C was prepared for the purpose of showing the relationship of the gross tons of these test trains to the gross tons of trains during the thirty days of heaviest traffic, and also the thirty day period which preceded the test?

Mr. Tollerton: Yes.

Column 3, Diagram C, represents the average gross tons per train on the train on which the observations were taken, as reported by the observers. This shows the average gross tons per train of the test trains was 1,928 tons and has been shown as 110 per cent.

Mr. Sheean: So that B and C show that the test runs were both a little longer in time and heavier in tonnage than the average during the preceding period of thirty days, or during the thirty days of heaviest traffic on the division where the observations were made?

Mr. Tollerton: Yes. It was the intention to show that these trains were representative of ordinary performance in that territory. It will be noted that the average time on the road of the test trains was 4 per cent higher than the average for a period of thirty days previous to the test, and one per cent higher than the average time on the road for a period of thirty days during the season of heaviest traffic. It will be noted that

the average gross tons per train of the test trains was ten per cent higher than the average gross tons per train in similar service, for a period of thirty days during the season of heaviest traffic, and seven per cent higher than the average gross tons per train during thirty days previous to the test. These observations cover a large number of trips in freight service over a large territory, indicating the average work performed by the firemen in ordinary operating conditions.

Mr. Sheean: I think you said this morning, Mr. Tollerton—we got a little ahead of this—and you said something about the fireman putting in about one per cent of his total time in shoveling down coal. Was it as a result of these observations that you reached that conclusion?

Mr. Tollerton: Yes. The result of the observations as reported by the railroads, covering some 2,000 trips. The average time the fireman was engaged in performing this service represented about one per cent of his time on duty.

Mr. Sheean: The detail reports, over the signatures of those who made these observations, are here and accessible, are they?

Mr. Tollerton: Yes, sir; they are all here and can be referred to.

Mr. Sheean: I will ask you to file those or leave them here where they may be accessible for the purpose of check and verification.

Mr. Park: Were they all locomotive engineers that made the tests, Mr. Tollerton?

Mr. Tollerton: Yes; I think 100 per cent of them were locomotive engineers. I do not recall a case where there was a locomotive fireman engaged in these observations.

Mr. Sheean: And the result of these observations is summarized here?

Mr. Tollerton: Yes, sir.

Mr. Sheean: Now, Mr. Tollerton, can you tell us the largest amount—perhaps in addition to this average it would be well to develop the largest amount of coal supplied on the engine, and the lowest, so that we may know within what limits this average was reached.

Mr. Tollerton: The maximum of coal shoveled in one

hour, is reported by the C. B. & Q. Railroad, 7,740 pounds of coal.

Mr. Sheean: That is, these reports show the particular hours and times when any shoveling was done?

Mr. Tollerton: Yes, sir.

Mr. Sheean: And where was the run, the engine and all, if you have the detail there?

Mr. Tollerton: I want to qualify that by saying that this is more than is exacted from the fireman in ordinary every-day operation. This run was made with engine No. 5044, Aurora Division, September 8, 1914, Engineer Johnson, Fireman Mertz, Galesburg to Chicago, 155 miles, 3,472 tons; the rating of the engine crew was, on duty 14 hours and 15 minutes. The average time the fireman was engaged in manual labor was 5 hours and 23 minutes, or 38 per cent of the time on duty. He was performing no physical labor for 8 hours and 52 minutes, or 62 per cent of the total time on duty. The average pounds of coal supplied the fire box for the maximum hour on all of the trips, that are reported here, is something under 4,000 pounds.

Mr. Sheean: That is the maximum hour? You took the hour in which the firing bunched up the closest?

Mr. Tollerton: We took the hour that the engine was making the greatest speed. That is what consumes coal. When an engine is working slow, it is the easiest on the fire. Horse power is developed by speed. The development of horse power at high speed is what consumes the coal. I believe, as I recall the details of this run—merely quoting from memory—that he was running ahead of a passenger train at the time that this extreme firing rate occurred. However, the tests are all here.

Mr. Sheean: What was the method of arriving at the total amount of coal consumed during the trips as shown by these reports?

Mr. Tollerton: There were various methods adopted. In some cases the coal was weighed on the tender, both before leaving the terminal and after arriving at the terminal. In a majority of cases, however, the coal was measured by keeping an accurate account of the number of scoops of coal put into the firebox. The weight of the scoop of coal being estimated by taking three or four scoops of coal, placing it in a bag,

weighing the bag on the scales, and dividing it by three or four, as the case may be.

Mr. Sheean: Just explain what you mean by taking three or four scoops of coal and putting in the bag?

Mr. Tollerton: Take an ordinary coal scoop, put it in a pile of coal, lift it out with all the coal that the scoop will hold, put it in a bag; take another, put it in a bag; take another, put it in a bag—three. Take the bag and put it on the scales. If it weighs 45 pounds, take 15 as the average weight of the scoop of coal. That will be, you will find, in ordinary practice, higher than the man will handle on a shovel right straight through a firing period; so that the estimated amount of coal would be slightly higher than the actual coal shoveled.

The Chairman: How often is a fireman required to put coal in the furnace in running an engine, say, for an hour, ordinarily?

Mr. Tollerton: It greatly depends, of course, on his train.

The Chairman: Well, say he has a heavily loaded train.

Mr. Tollerton: It depends on his speed.

The Chairman: Making 20 miles an hour.

Mr. Tollerton: And on practically a level grade?

The Chairman: Well, yes; on a level grade.

Mr. Tollerton: I would say that possibly one fire every ten minutes would be a fair statement.

The Chairman: Suppose he is going up a grade of 2 per cent or more?

Mr. Tollerton: His work would be considerably lighter.

The Chairman: His work would be considerably lighter on a grade than it would be on the level?

Mr. Tollerton: Yes. Of course, if his speed was maintained up the grade, his work would increase.

The Chairman: How often is he required to replenish the fire on one of these engines making 60 miles an hour?

Mr. Tollerton: It is quite constant; because at 60 miles an hour the engine is consuming its greatest amount of coal. At 60 miles an hour, in passenger service, however, he gets over the road very quickly, and as he is paid on miles or hours, his rate of pay is correspondingly higher according to the time on duty.

The Chairman: These tables are based on freight service, are they?

Mr. Tollerton: Yes, sir.

Mr. Shea: Just a little more information on that, Mr. Tollerton. You said he made one fire in each ten minutes.

Mr. Tollerton: I would say that would be a fair statement, on a level.

Mr. Shea: Running at a speed of 20 miles per hour?

Mr. Tollerton: Yes. Of course it would depend on the number of the scoops of coal he put into a fire.

Mr. Shea: Well, I was going to ask you how many scoops did you include in a fire.

Mr. Tollerton: Oh, I would say six or seven.

Mr. Shea: Six or seven scoops?

Mr. Burgess: Mr. Tollerton, are you willing to have all the firemen on the Rock Island Railroad accept your testimony as a guide to proper firing? That is, not put in a fire only once in ten minutes, under the circumstances you have outlined?

Mr. Tollerton: Of course, I understand what you are going to bring out is your single shovel firing.

Mr. Burgess: I beg your pardon. The answer to the question was clear. I am not trying to bring that out. I just want one question. In answer to the Chairman, running twenty miles an hour, with a heavily loaded train on a level grade, you answered his query that it was only necessary to put a fire in the locomotive once in ten minutes.

Mr. Tollerton: That is my judgment of it.

Mr. Burgess: Now, are you willing—my question is, are you willing to have all the firemen on the Rock Island Railroad take your testimony as a guide to properly fire your locomotives?

Mr. Tollerton: That, of course, is my judgment of a way a fireman handles his engine. Now, it may be eight minutes. I was merely stating ten minutes as my judgment.

Mr. Burgess: It might be twelve, might it not?

Mr. Tollerton: Well, might be two.

Mr. Park: Mr. Tollerton, do not your observations show it? Do not these diagrams show it?

Mr. Tollerton: No, the diagram does not show the amount of coal. It shows the amount of coal shoveled in an hour.

The Chairman: Have you had any experience in firing?

Mr. Tollerton: Yes, but a number of years ago. The engines have changed entirely since I fired a locomotive.

The Chairman: You have not had occasion to observe the amount of work that the fireman is now required to do, in firing one of these engines?

Mr. Tollerton: In the last couple of years, no. I am making my statement entirely from information furnished me.

The Chairman: The data on which you base your exhibits?

Mr. Tollerton: Yes.

Mr. Burgess: Mr. Tollerton, once more we will try it. Are you willing that all the firemen on the Rock Island Railroad take your testimony as the proper method to fire a locomotive, modifying it to this extent—not to put in a fire only between eight and twelve minutes?

Mr. Tollerton: Taking the average firing rate on these reports here, right straight through, a fireman would have to put in considerably more coal than that.

Mr. Burgess: He would?

Mr. Tollerton: Yes.

Mr. Burgess: Thank you.

Mr. Sheean: These sheets, Mr. Tollerton, show the actual hours on the heavy runs, 185,000 pounds or over?

Mr. Tollerton: Yes.

Mr. Sheean: And the hours on the run of practically nine hours, almost nine hours of the test trains, eight hours and 56 minutes.

Mr. Tollerton: Yes, 8 hours and 56 minutes.

Mr. Sheean: These trains were not operated on a level track at a speed of twenty miles an hour, were they?

Mr. Tollerton: No. They were operated on sixteen different railroads over various grade lines.

Mr. Sheean: Well, as to the space of time that elapsed between putting in or the shoveling of coal, that is shown on these test sheets, is it not?

Mr. Tollerton: Yes, that is shown.

Mr. Sheean: And as to the part of the time devoted to this other work, the fact shown by the test is, that less than half of the time on the road is occupied by physical labor.

Mr. Tollerton: Yes, two-thirds of the time occupied in performing no physical labor; one-third in performing physical labor.

Mr. Sheean: So that, if it be a break of shoveling one minute, and disengaged, or not shoveling for three or four minutes, or whether it be shoveling for two minutes, and a break of ten minutes, the fact remains, on these observations, that less than half the time is engaged in the actual shoveling of the coal?

Mr. Tollerton: These observations, based on 474 runs, show that but 23 per cent of his time is engaged in actually shoveling coal.

Mr. Sheean: Now on these hours of maximum effort that you told about a little while ago, what do they show as to the part of his time?

Mr. Tollerton: During the trip of the highest firing rate reported by the Burlington Railroad, the fireman was engaged, I believe, 27 per cent of his time during the hours that he fired the highest rate of fuel, the highest number of pounds.

Mr. Burgess: May I ask another question?

Mr. Sheean: Surely.

Mr. Burgess: Mr. Tollerton, if I recall your testimony relative to the hours that the fireman was not performing physical labor, in answer to the Chairman, I think, you said that he was either standing at ease, or sitting on the seat box when he was not performing physical labor. Now, on this Table 1, to which I invite your attention, you say that he was 8 hours and 47 minutes on duty, 6 hours and 5 minutes, or 69 per cent, of that time he was either sitting on the seat box or standing at ease. Is that right?

Mr. Tollerton: Yes, according to the reports of the railroad.

Mr. Burgess: Therefore, as mechanical head of the Rock Island Railroad, having entire charge of all the firemen and all the engineers, would it be fair to assume that we can advise the firemen that they are privileged to stand or sit at ease for 6 hours and five minutes out of a total of every 8 hours and 47 minutes they are on duty?

Mr. Tollerton: These observations stretch over a period of 8 hours and 47 minutes. They are not meant to infer that the

fireman worked one hour and 42 minutes, and then sat down for 6 hours and 5 minutes? They are not meant to infer that at all.

Mr. Burgess: But he did that intermittently?

Mr. Tollerton: Yes.

Mr. Burgess: But in the total time on duty of 8 hours and 47 minutes, would Mr. Carter be justified in telling the fireman that he was entitled to 6 hours and 5 minutes at ease, of course taking that rest intermittently, out of every 8 hours and 47 minutes that he worked?

Mr. Tollerton: This table was made up from the time furnished by the railroads on 1,556 trips, and is an exact calculation of what the observers reported.

Mr. Burgess: And so, inasmuch as it is an exact calculation, that would seem to warrant the assumption that these firemen could be advised that it was the opinion of the mechanical head, that they were entitled to six hours and five minutes in every eight hours and 47 minutes, providing they took this rest intermittently?

Mr. Tollerton: I think that is entirely probable.

Mr. Burgess: Thank you.

Mr. Park: Mr. Tollerton, it would not make any difference to the railroad, would it, if they kept the engine hot, what they did with the rest of the time?

Mr. Tollerton: No; and again, on the line where there may be long grades, the fireman's rest period is considerable stretched out.

Mr. Nagel: Mr. Tollerton, what is the precise purpose of this table? Is it to show that these firemen do not need any assistance, or that they are not earning more than they are now getting?

Mr. Tollerton: Mr. Nagel, the precise reason for this tabulation and observation, is based on their Article 13, that calls for two locomotive firemen in freight service, in locomotives burning coal that weigh 185,000 pounds and over on drivers. As illustrated in my testimony this morning, it is entirely possible that in the event of an award of this kind, that a railroad would be faced with the problem of spending $3,000 to equip an engine with superheater, thereby reducing its fuel consumption 30 per cent, reducing the labor of the locomotive engineer by giving

him a more efficient machine, reducing the labor of the fireman by what I have stated before, 30 per cent, the engine hauling no more cars. By the application of this weight on drivers rule, incidental to making these improvements, incidental to spending the $3,000, you would be forced to put two firemen on the engine. The purpose of this report is to show that, on sixteen railroads, parties to this movement, there were 474 runs made in freight service, with maximum tonnage, average operating conditions, with one fireman on the engine now.

Mr. Nagel: In other words, you show that one fireman is ample to do that work.

Mr. Tollerton: Absolutely—entirely.

Mr. Nagel: 2,000 pounds of coal per hour?

Mr. Tollerton: On the 1,556 trips, that is correct. 1,975 pounds per hour on the 1,556 trips. On the 474 trips, on a larger engine generally, 2,460 pounds per hour.

Mr. Nagel: You would not say that a fireman is resting during all the time when he is not actually shoveling coal?

Mr. Tollerton: These observations were taken with particular instructions to credit the fireman with every bit of time that he was performing any labor whatsoever.

Mr. Nagel: He is responsible for the fire, all the time, is he not?

Mr. Tollerton: Yes, sir; he is responsible for the fire all the time. That is indicated to him, however, by the steam gauge on the engine.

Mr. Nagel: Still he has got to have his mind on that question?

Mr. Tollerton: Yes.

Mr. Nagel: You would not say that a motorman in charge of a car is not working, because he is not at work at the lever, at a particular time, but only watching to know whether the car is to stop or not?

Mr. Tollerton: Mr. Nagel, I do not wish to infer by my testimony that I do not consider the fireman doing his full duty at all times, the same as the locomotive engineer, but I do intend to try and show by my testimony, that on these locomotives that they are asking for two firemen, that the work is not now beyond the capacity of one man to do the work.

Mr. Nagel: In other words, you do not want to say that shoveling coal covers his whole responsibility?

Mr. Tollerton: No; of course he is paid for his entire trip.

Mr. Nagel: Simply undertaking to show that there is nothing involved in this work that one fireman can not do?

Mr. Tollerton: That is the idea.

Mr. Nagel: You said that the employment of these devices, the superheater, and so forth, reduced the consumption of coal, by, say 30 per cent?

Mr. Tollerton: Thirty per cent is a fair assertion.

Mr. Nagel: And are we to understand that the labor of the fireman is correspondingly reduced?

Mr. Tollerton: Yes; based, of course, on his handling coal. His labor is not reduced in any way by looking out for signals, or anything of that kind, but his physical labor is reduced to the extent of 30 per cent.

Mr. Nagel: And, at the same time, you say that the increases in the weight on drivers is such as to carry the particular locomotive into another class, under these schedules?

Mr. Tollerton: Another rate of pay, yes.

Mr. Nagel: But, if that other rate of pay is to be secured, the fireman would have to do additional work, would he not? That is, more coal would be consumed to secure the higher horse power?

Mr. Tollerton: Not under this proposition. Under this rate of pay, identically the same locomotive, creating no more horse power—aggregate horse power, at speed, would carry a greater rate.

Mr. Nagel: I did not understand that. In other words, it is not the horse power actually employed, but the theoretical horse power?

Mr. Tollerton: No, it is the horse power actually employed. The speed of the train indicates the horse power developed, and the horse power developed indicates the amount of coal that the fireman will shovel. For a superheated engine he will shovel 3.2 pounds of coal per horse power hour. With a saturated engine, he will shovel four pounds of coal per horse power hour.

Mr. Sheean: Now, Mr. Tollerton, but with those two engines, taking your Rock Island situation, of an engine without

the superheater device, and take its twin, to which you have attached the superheater, is there any difference in the tractive effort of those two engines, when you have equipped one with a superheater, and the other is without a superheater?

Mr. Tollerton: Just one moment. I will answer no to that, and will add that Mr. Osterman, Vice-President of the Locomotive Superheater Company, in an address before the American Society of Mechanical Engineers, January 8, 1915, spoke as follows: I will say incidentally that Mr. Osterman is an authority on superheaters, and is so accepted.

"The superheated locomotive has not any more starting effort than the saturated locomotive of the same engine dimensions. On hilly roads, in many instances, the starting feature covers the tonnage that can be handled. I have never heard of a case where the extra horse power, at higher speeds, could all be utilized in practice. Therefore, part of the benefits of superheating must always be reaped in the form of fuel and water saving, and in all practical cases is the fireman bound to save some of his physical effort." Does that answer your question?

Mr. Sheean: I just wanted to get back and make clear, if we could, the practical effect here on your Rock Island Road, of putting on the superheater, saving the consumption of coal, and with that saving of coal, increasing the pay of the firemen, as to whether or not there was any way of escaping that, under this proposition, should this award go into effect.

Mr. Tollerton: None whatever.

Mr. Sheean: The engines remaining the same. The engines which you have there now, if you equip them with a superheater, which saves the fireman work, will bring a higher rate of pay to the part of them that are superheated, than to the man who still continued to fire the saturated engine.

Mr. Tollerton: Yes, because it brings the weight on drivers over the various points that they have specified, as to the dividing rate of pay.

Mr. Sheean: With that superheater, thus attached to the engine which you now have on the Rock Island, and with this attachment saving the work to the firemen, the shoveling of coal, will there be any other or further duty added to the fireman who has on the superheater, that he does not have on the saturated engine?

Mr. Tollerton: No additional duties whatever.

Mr. Shea: The only change in the fireman's duty, by the addition of the superheater, would be to diminish the amount of coal that he shoveled?

Mr. Tollerton: Yes, sir; and I might add, decreasing the labors of the locomotive engineer, by giving him an efficient locomotive. Engineers who have had to get over the road with a poor steaming engine, will appreciate a good steaming engine, which is brought about by the application of the superheater.

Mr. Shea: So that in your situation, Mr. Tollerton, equiping two, or four, or six of these engines, at a time, the engineer who has the most efficient engine and gets over the road faster, will draw a higher rate of pay than the man who continues on the saturated engine, and the fireman who shovels less coal on that engine than he did before you put the superheater on, will draw a higher rate of pay?

Mr. Tollerton: Yes, sir.

Mr. Nagel: I understood you to say this morning that the use of a superheater reduces the consumption of coal and the labor or the fireman, and increases the weight on drivers, but that that does not enable you to carry more tonnage, because tractive power is the test at the start. The superheater does not help until the engine has got its speed?

Mr. Tollerton: That is exactly true, Mr. Nagel. The starting effort of two engines of identical dimensions, one equipped with a superheater, and the other not, is not changed whatsoever. The superheater does not become effective until after the locomotive starts and accumulates speed.

Mr. Nagel: Then you have the result that you save fuel, and you save the fireman labor, and you have increased the driving power, without practical result to the road, but with practical result to the wage scale?

Mr. Tollerton: Yes, that is how it would work.

Mr. Nagel: That is your interpretation?

Mr. Tollerton: That is how it would work out.

Mr. Sheean: Now, on Sheet No. 2, Mr. Tollerton, you have made a comparison of the engines between saturated and superheated engines. From what source did you derive the information from which this table was made up, or these tables 3 and 4?

Mr. Tollerton: Table 3 is a summary of reports received on the performance of locomotive firemen in freight service on coal burning locomotives weighing 185,000 pounds to 200,000 pounds on drivers, as between saturated and superheated steam locomotives. This is merely a subdivision of Table 2.

Mr. Sheean: And is derived from the same logs of various trips?

Mr. Tollerton: The same logs.

Mr. Sheean: Table 3 shows the number of observations on saturated and the number on superheated. What was the average time on duty on these trips for the saturated?

Mr. Tollerton: The average time on duty for the saturated steam locomotive was 11 hours and 57 minutes; of the superheated engine, 10 hours and 50 minutes.

Mr. Sheean: And what was the average per cent of the time the fireman was on duty that he was engaged in supplying coal to the fire box?

Mr. Tollerton: On the saturated locomotive, he was engaged 23 per cent of his time. On the superheated locomotive, 18 per cent of the time in supplying coal to the fire box.

Mr. Sheean: And what per cent of the total time on duty was he engaged in performing manual labor in the two cases?

Mr. Tollerton: On the saturated steam locomotive, on an average, he was engaged 38 per cent of the total time on duty in performing manual labor. On the superheated locomotive he was engaged in performing manual labor 27 per cent of the total time on duty.

Mr. Sheean: And the tons or pounds of coal per hour in the two cases, is shown in the last line of this table, No. 3?

Mr. Tollerton: Yes.

Mr. Sheean: The tonnage being slightly greater in the superheated, the coal consumption in the two cases?

Mr. Tollerton: The coal consumption shows the average tons of coal per trip for the saturated locomotive was 13 tons; for the superheated locomotive, 12 tons.

Mr. Sheean: Mr. Tollerton, on this showing, how do you reconcile the fact that the average coal consumption per hour on duty was more on the superheated than on the saturated, with your claim here that economies are effected in coal consumption?

Mr. Tollerton: Those comparisons were not made on any one railroad. We merely took the engines reported as between those figures by the railroads, and made the tabulation to show the general superiority of the superheated engine over the saturated. Of course, in the amount of coal shoveled per hour, there is a slight variation, which would be accounted for by the time on the road.

Mr. Sheean: Well, Mr. Tollerton, you show here that on the saturated the pounds of coal per hour was less than it was on the superheated?

Mr. Tollerton: Yes.

Mr. Sheean: Do these figures cover identical trips, identical territory?

Mr. Tollerton: Oh, no, not at all. They stretch over these sixteen railroads.

Mr. Sheean: And on some there were superheated engines and on others other runs?

Mr. Tollerton: Oh, yes, merely taking the group of engines reported by the railroads under these weights, making the compilation. You will note that one is a comparison of 84 trips and the other 41 trips.

Mr. Sheean: And the 84 trips not over the same territory or the same division as the superheated engines?

Mr. Tollerton: No.

Mr. Sheean: Well, I wish you would just give us some examples. I am afraid I don't just get that entirely clear, Mr. Tollerton, just what difference that would make?

Mr. Tollerton: I will say here that on runs on the same road, using the same locomotive, one superheated and the other not, we have a run made on the Milwaukee Railroad between Milwaukee and Galewood, a distance of 83 miles; locomotive 7146, saturated steam, weight on drivers, 189,200 pounds; tractive effort, 42,800 pounds; gross tons in train, 2,427 tons; consumed 23,400 pounds of coal.

Locomotive 7227, superheated steam; weight on drivers, 197,500 pounds; tractive effort, 43,130 pounds; gross tons in train, 2,544; pounds of coal consumed, 16,300 pounds.

It will be noted that the superheated steam locomotive, with a slight increase of tonnage over the saturated locomotive of about the same general characteristics, consumed 7,100 pounds,

or 30 per cent less coal on the trip than the saturated steam locomotive.

Mr. Sheean: That was between the same two points on the same railroad?

Mr. Tollerton: Yes. Now, here is another one. The Chicago, Milwaukee & St. Paul, Galewood to Milwaukee, 83 miles; locomotive 7146. Saturated steam locomotive; weight on drivers, 189,200 pounds; tractive effort, 42,800 pounds; gross tons per train, 2,433; coal consumed, 22,400 pounds.

Locomotive 4272, superheated steam; weight on drivers, 197,500 pounds; tractive effort, 43,130 pounds; gross tons per train, 2,403 pounds; coal consumed, 16,500 pounds.

It will be noted that the superheated locomotive handled about the same tonnage as the saturated steam locomotive of the same general characteristics on 5,900 pounds less fuel, or 28 per cent, during the trip.

Mr. Sheean: Well, then, on these other comparisons of 84 trips saturated, with 41 trips superheated, you have simply taken from the summary here, the runs that were shown to be with superheated engines, and those that were shown to be saturated?

Mr. Tollerton: On locomotives carrying that weight.

Mr. Sheean: Carrying the same weight?

Mr. Tollerton: No, between that spread.

Mr. Sheean: Between that spread, I mean.

Mr. Tollerton: Yes.

Mr. Sheean: And from the information assembled on all these different roads, wherever you found an engine described as being the one or the other, and coming within that spread, you included it to make this analysis?

Mr. Tollerton: Yes.

Mr. Sheean: Now, wherever there was a comparison between the same points on the same railroad, what were the facts as to the amount of coal consumed by the saturated and the superheated?

Mr. Tollerton: Well, I have just given you that on those two tests on locomotives of the weights that I have just stated, on one test there was 30 per cent fuel economy; on the other 28 per cent. Do you desire to have other tests?

Mr. Sheean: Well, I wondered whether you could state

generally whether or not the run, considered on the same railroad and between the same points of comparison, showed the saving of fuel to which you have testified *where superheated was used?*

Mr. Tollerton: Yes.

Mr. Sheean: Well, now, then, Table 4, Mr. Tollerton, that shows the comparison as between the heavier locomotives from 200,000 pounds to 225,000 pounds?

Mr. Tollerton: Yes.

Mr. Sheean: And that is summarized in the same way, is it?

Mr. Tollerton: The summary is made up identically the same way.

Mr. Sheean: In that particular class of engines or trips, from all of these reports, when you came to analyze them, you found that in this division there were only forty-two trips in which the engine was a saturated engine, and 198 trips where it was a superheated engine.

Mr. Tollerton: Yes. The summary of the report received from the various railroads on the performance of locomotive firemen, on coal burning locomotives weighing 200,000 pounds to 225,000 pounds on drivers, in freight service. This is a subdivision of table 2. The summary covers 42 observations taken on saturated steam locomotives, and 198 observations taken on superheated steam locomotives in freight service, burning coal.

Mr. Sheean: The average time on duty in the two cases was what?

Mr. Tollerton: The average time on duty for the saturated steam locomotive was 9 hours and 15 minutes; for the superheated steam locomotive it was 9 hours.

Mr. Sheean: And the average time on the two cases, in supplying coal to the fire box was what?

Mr. Tollerton: As an average, during the observations taken on saturated steam locomotives, the fireman was engaged 21 per cent of his time in supplying coal to the fire box; and on observations taken on the superheated locomotives, the fireman was engaged an average of 19 per cent of the time he was on duty in supplying coal to the fire box.

Mr. Sheean: And what per cent of the time engaged in manual labor?

Mr. Tollerton: On the saturated steam locomotive the fireman was engaged 41 per cent of the time he was on duty in performing manual labor. On the superheated locomotive he was engaged 34 per cent of the time he was on duty in performing manual labor.

Mr. Sheean: In this case, Mr. Tollerton, the summary of these observations shows the average pounds of coal consumed per hour on saturated engines as 2,670, as against 2,280 for the superheated.

Mr. Tollerton: Yes, sir.

Mr. Sheean: But is there the same situation on this that there was on the other—that you simply had taken all of the trips shown, with the two classes of engines, in arriving at this total, so that the one does not necessarily compare with the same railroad division as the other?

Mr. Tollerton: That is true. This table 4 was prepared identically the same as table 3, merely taking the locomotives reported by the railroads that would fall within this division.

Mr. Sheean: So that in both of these tables, three and four, the runs may be under a variety of operating conditions and a variety of grades and a variety of kinds of railroads?

Mr. Tollerton: Oh, yes.

Mr. Sheean: Give us a comparison there on some runs made with the superheated and saturated over the same division of railroads, just as you did in the other case?

Mr. Tollerton: The Chicago & North Western Railroad, Adams to Butler, 113 miles, locomotive 1757, saturated, weight on drivers 207,000 pounds, tractive power 47,500 pounds, gross tons, 1,996; pounds of coal consumed, 30,510.

Locomotive 1827, superheated, weight on drivers 209,500 pounds, tractive effort, 47,500 pounds, gross tons 2,010, coal consumed 21,186 pounds. It will be noted that the superheated engine, with the same tonnage, consumed 9,324 pounds of coal less than the saturated engine, or a reduction of 31 per cent for the trip.

Mr. Sheean: That was on the same railroad, and over the same division, or between the same two points?

Mr. Tollerton: Yes; the same railroad. Shall I give you another?

Mr. Sheean: Yes, please.

Mr. Tollerton: Locomotive 1,757, saturated, weight on drivers 207,000 pounds, tractive effort 47,500 pounds, gross tons 2,277, coal consumed 30,798 pounds.

Locomotive 1,890, superheated, weight on drivers 214,500 pounds, tractive power 47,500 pounds, gross tons 2,296, coal consumption 21,960 pounds.

It will be noted that the superheated locomotive, with the same tonnage consumed 8,838 pounds less coal, or a reduction of approximately 30 per cent.

I want to add further, that these trips were made, both trips, with engine 1,757; but the superheated engine was changed in the trip, and another engine was put in, with the result that one shows a 30 per cent fuel economy, and the other a 31 per cent fuel economy.

Mr. Sheean: And both of the superheated engines on those trips, over the same railroad, between the same points, drawing a greater tonnage than the saturated engines?

Mr. Tollerton: Well, the tonnage was practically the same.

Mr. Sheean: Yes; but in both cases it was a little bit higher for the superheated engine.

Mr. Tollerton: Yes, a trifle higher.

Mr. Sheean: Mr. Tollerton, does it also obtain in this class of engines, where the observation is taken over the same rails, the same division, the same grades, and everything, that there is the economy in fuel consumption on the superheated, as compared with the saturated?

Mr. Tollerton: These tests were all made on railroads parties to this movement.

Mr. Sheean: Well, generally speaking, does it show the same result here that you have just given as to this North Western run, that where you take the same points, the same tonnage, and the same engine, one saturated and the other superheated, that the superheated draws the load with less coal consumed, over the same railroad?

Mr. Tollerton: Oh, yes. All the tests, and there are thousands of them, bring out the same result.

Mr. Sheean: Let us run through table 5, rapidly, Mr. Tollerton. Table 5 shows the performance on locomotives weighing 225,000 to 250,000 pounds on drivers.

Mr. Tollerton: Yes.

Mr. Sheean: You did not find any in that class of the saturated, that were sent to you for analysis?

Mr. Tollerton: No. This is a summary of reports received from the various railroads on the performance of locomotive firemen on the coal burning locomotives weighing 225,000 pounds and 250,000 pounds on drivers in freight service. It is a subdivision of table No. 2, and covers mainly what is known as the Mikado type of freight locomotives.

Mr. Sheean: Does that account for the fact of your not finding the saturated in that class, because those are generally superheated?

Mr. Tollerton: This is the more modern type of engine and they are practically all superheated.

Mr. Sheean: And in the observations which came to you for analysis, you found none which, in freight service, would show this particular classification, and which was not a superheated engine?

Mr. Tollerton: That is true, on the roads making the reports.

Mr. Sheean: The results there, in the same manner, are indicated as to these various items that you have specified before, of average time supplying coal to firebox, time engaged in manual labor, tons of coal per trip, and coal per hour of time on duty—the same information carried out solely as to superheated, because you had no information on the saturated of that class?

Mr. Tollerton: That is true. It shows generally, however, that on the number of trips reported, Column 1 indicates the average time on duty, column 2 the average time a fireman was supplying coal to the firebox, and shows it as 20 per cent. Column 3, the average time he was engaged in performing physical labor, shows as 31 per cent. Column 4, the time performing no labor, and shown as 61 per cent.

Mr. Sheean: Table 6, then, makes comparison of 9 trips with saturated engines and 36 superheated, in the Mallet class of engines, weighing 300,000 pounds and over, on drivers?

Mr. Tollerton: Yes.

Mr. Sheean: That was assembled from the same information from which you prepared these other tables?

Mr. Tollerton: Yes, it was prepared from the same information.

Mr. Sheean: And this Table 6, Mr. Tollerton, shows on the Mallet engines the same general situation that is shown on the others, of a reduction in the coal consumption per hour?

Mr. Tollerton: Yes; this is a summary report of the different railroads on the performance of locomotive firemen, on Mallet locomotives, weighing 300,000 pounds and over on drivers. These were in freight service, burning coal.

Mr. Sheean: Well, now, Mr. Tollerton, in making that comparison there, you having only 9 trips of saturated and 36 superheated, is there the same lack of comparability, because of the difference in trips, that there was in this other comparison that we made, treating it as a whole, being over varying districts or different railroads?

Mr. Tollerton: These were made over entirely different railroads. In some cases, however, we have got a companion trip as between identical engines.

Mr. Sheean: I would like to have you give the companion trips of Mallets, over the same railroad track and the same points—what the showing is there?

Mr. Tollerton: On these trips reported on the superheated locomotive, the fireman is shown to be engaged 21 per cent of his time, supplying coal to the fire box; 33 per cent of his time performing any physical labor, and 67 per cent of his time performing no physical labor.

On the Chicago, Milwaukee & St. Paul, Three Forks to Harlowton, 114 miles, locomotive saturated, No. 9500, weight on drivers, 323,500 pounds, tractive effort 76,200 pounds, tonnage handled 1903; coal consumption, 41,720 pounds.

Locomotive 9102, superheated, weight on drivers, 327,500 pounds, tractive effort, 76,200 pounds; tonnage handled, 1,990; coal consumed, 34,000 pounds.

It will be noted that the superheated locomotive, with slightly increased tonnage, consumed 7,720 pounds less coal than the saturated engine, for the trip.

Mr. Sheean: And the tonnage handled was slightly greater?

Mr. Tollerton: Yes, the tonnage handled was slightly greater. Now, we have the same engine, saturated locomotive

9,500, weight on drivers the same, tonnage handled 1,893, coal consumed 47,120 pounds.

Locomotive 9,102 again, same weights, tonnage handled 1,993—that is a superheated engine, the last one—coal consumed 41,180 pounds.

It will be noted that the superheated engine, with a slight increase in tonnage, consumed 5,940 pounds less coal.

Mr. Sheean: Those were on the same division, over the same railroad?

Mr. Tollerton: Yes, reported by the Chicago, Milwaukee & St. Paul, between Three Forks and Harlowton.

Mr. Sheean: That is confirmatory of your general observation, is it?

Mr. Tollerton: Oh, yes.

Mr. Sheean: Now, from your experience and observation and analysis of these reports, Mr. Tollerton, is it your judgment that the amount of coal consumed on these trips, for these heavier types of locomotives, actually burned, is beyond the capacity of firemen?

Mr. Tollerton: No, sir.

Mr. Sheean: I wish you would give us some authorities that you referred to here, as to what consumption of coal, continuous firing, hand firing has been found on observation, or under test, to be reasonably possible?

Mr. Tollerton: We have a great many authorities on that. The builders estimate 6,000 pounds per hour. There have been any number of tests made on the Pennsylvania Railroad, where 9,000 to 10,000 pounds of coal, per hour, were consumed, hand firing.

Mr. Sheean: Well, that is during a single hour's performance?

Mr. Tollerton: Yes.

Mr. Sheean: Now, what conclusion or what limit is there placed in the opinion of various observers as to the continuous performance on a trip, spread out through a trip?

Mr. Tollerton: A period of ten hours?

Mr. Sheean: Yes.

Mr. Tollerton: About 4,500 pounds per hour, continuously, for ten hours.

Mr. Sheean: On these observations, with the heaviest

loading of the tonnage and the heaviest types of engines, the largest shown here on the Mallet type of locomotives, with saturated steam, is 3,260 pounds per hour? I think it was your last table on the Mallet type?

Mr. Tollerton: Table No. 6?

Mr. Sheean: Yes.

Mr. Tollerton: It shows 2,495 pounds.

Mr. Sheean: On the superheated, and 2,365 on the saturated.

Mr. Tollerton: Yes. Now, I want to say to you that in locomotives reported by the railroads in this movement, about something over—about 23,000, that the Mallet engines not equipped with labor saving devices and superheaters are .3 of 1 per cent. The total Mallet engines reported by the railroads in this Western movement, as I recall the figures, are slightly less than 2 per cent of the total engines reported. 1.7 per cent of the engines reported in this Western movement, being Mallets. Of that 1.7 per cent, 1 per cent of that total are oil burners.

Mr. Sheean: Well, you mean of the 1.7 per cent, 1 per cent are oil burners?

Mr. Tollerton: Yes.

Mr. Sheean: That is over half of the Mallets in the territory?

Mr. Tollerton: Over half of the Mallets in the territory are oil burners, and, as I said before, I think .3 of 1 per cent of the Mallets are reported as being saturated steam locomotives.

Mr. Sheean: Well, this Exhibit 15, Mr. Tollerton, shows Mallet engines—total number of locomotives of the Mallet type, 457; number of oil burners, 183.

Mr. Tollerton: Yes, that is a little better than one-half, you see.

Mr. Sheean: No, less than one-half, is it not? 457, total number of engines, 183 of them oil burners. You had the greater proportion in your statement here a moment ago, as I got it, were oil burners. Slightly less than half, is it not?

Mr. Tollerton: Slightly less, I think. I was merely speaking from memory.

Mr. Sheean: Well, of the 457, 183 were reported as being oil burners. That would leave 274 coal burning engines, and of

those, 252 are shown to be equipped with superheaters, 127 with brick arches, 170 with power coal pushers, 45 with hopper bottom tenders, 2 with power stokers, and 143 with automatic door openers, 74 with power grate shakers, and of the 457 Mallets, 440 have power reverse gear.

Mr. Tollerton: Yes, that is correct.

Mr. Sheean: Now, Mr. Tollerton, do you have any oil burners on your line?

Mr. Tollerton: Yes, we have a few. We had a number of oil burners a few years ago, but due to the price of oil we converted them back to coal. We have a few yet in the cotton territory.

Mr. Sheean: Well, are those the heavier, larger type?

Mr. Tollerton: No, they are the smaller.

Mr. Sheean: Do any of them come within the class of breaking on weights on drivers here?

Mr. Tollerton: I would have to look and see. I am rather inclined to think they would break on some of the lighter weights on drivers.

Mr. Sheean: Just how do the duties of a fireman on a coal burning engine vary or change when you reach a different weight on the drivers of the locomotive that he is firing with oil?

Mr. Tollerton: I don't quite understand the question.

Mr. Sheean: Well, there is a proposition here, whereby the fireman, if he is on an engine which weighs a certain amount, will get one rate of pay; if it is a little heavier weight on drivers, he has a heavier weight on drivers, he will get a higher rate of pay, both on oil as well as on coal burners. Now, in what way do the duties of a fireman on an oil burning engine change, when the weights on drivers change?

Mr. Tollerton: It does not change at all. A fireman's labor is no greater on an oil burning locomotive. That is the physical labor I am speaking of.

Mr. Sheean: Well, as to any hazard, is there any more danger of being burned on a Mallet oil burner than there is on one that weighs less than 80,000 pounds on drivers?

Mr. Tollerton: Of course, I could not say as to the Mallet engine. My judgment would say no. I am perfectly compe-

tent, however, to answer for the 98.3 per cent of the locomotives represented in this movement that are not Mallets.

Mr. Sheean: Well, let us take the other class then that are not Mallets, as between less than 80,000 and 80,000 to 100,000. Is there any change in the duties of a fireman on an oil burning locomotive between those two classes of engines, either in the physical labor they represent, or hazard, or anything else?

Mr. Tollerton: There is no change in the fireman's duties. His labor is in no way increased on an oil burning locomotive. Whether it weighs 80,000 pounds on drivers or 225,000 pounds on drivers.

Mr. Sheean: Well, is there any change whatever in any of the elements that enter into a fireman's work, either responsibility, physical labor, risk or hazard, or any other element entering into his work?

Mr. Tollerton: The only difference, of course, in that, would be that on the larger locomotive he would have to take oil more frequently; probably have to take water more frequently. That is the only element that would enter into increasing his physical work.

Generally speaking, however, the tenders of the larger locomotives are ample to take care of the increased requirements of the boiler, so that the fireman does not have to perform that service any more often.

Mr. Sheean: Well, then, if neither the water nor the oil, have to be replenished between the terminals on a run, with an oil burner, is there any difference between what a fireman does, starting out on an 80,000 pounds on drivers locomotive, and what he does when starting out with a 225,000 pounds on drivers locomotive?

Mr. Tollerton: Not as far as his physical or other work is concerned.

Mr. Sheean: Well, aside from his physical work, what, if any, difference is there as to any responsibilities that he has?

Mr. Tollerton: I do not recall at the present time anything that would make the responsibility of the fireman on an oil burning locomotive any greater on a large engine than on a small one.

Mr. Sheean: Is there any difference in the type or style of injectors that he may use in the two?

Mr. Tollerton: Well, of course the injector is larger, comparable with the boiler, but the operation is the same.

Mr. Sheean: Does it make it any harder work, or more effort to operate the one on the large engine than on the small one?

Mr. Tollerton: Of course, on our railroad we insist that the locomotive engineer shall operate the injector, not the fireman.

Mr. Sheean: I was talking about feeding the oil into the fire. I don't know whether you call that an oil injector or not.

Mr. Tollerton: No, there is no more labor on that, the small valve feeds the large engine just the same as the small one.

Mr. Sheean: And the work of feeding the oil to the larger engine is no different than feeding it on the small one.

Mr. Tollerton: None whatsoever.

Mr. Sheean: Does he have any grates to shake on the oil burning engine?

Mr. Tollerton: There are none in an oil burner.

Mr. Sheean: Any ash pans to clean or dump?

Mr. Tollerton: There are none on an oil burner.

Mr. Sheean: Is there any change at all as you go up in weights on drivers, between the work performed in the oil burners?

Mr. Tollerton: No change whatever.

Mr. Park: How about sanding the engine out occasionally?

Mr. Tollerton: Well, the sanding operation is a very small thing. They use a small box of sand, ordinarily carried in the fireman's seat box, a few hundred pounds of sand. Now, they use an ordinary grocer's scoop, like he uses for sugar in getting it out of the bin. They have a small hole in the fire box door, with a little drop cover on it. Every once in a while, I would say probably every ten miles, he takes the scoop in one hand, inserts it in this hole in the door, and takes a sugar scoop full of sand and turns it in there.

Mr. Park: That is the only additional labor he has, then?

Mr. Tollerton: Oh, yes, and that is the same on the small engines as on the large ones. That was your comparison, was it not, Mr. Sheean?

Mr. Sheean: Yes. Well, I was wondering whether he had

to shovel any more sand on the 225,000 one than he did on the 80,000 pounds weight on drivers.

Mr. Tollerton: No. He hasn't it to shovel.

Mr. Sheean: Then, not merely as to physical work, but as to any responsibility or change in duties, as to watching signals, or anything else, is there any difference between the two?

Mr. Tollerton: I would say that the responsibilities are identical with an oil burning fireman on a large engine or a small one.

Mr. Sheean: By the way, Mr. Tollerton, I think you have been quoted here as having said something with reference to the handling of increased tonnage through the use of Mikados?

Mr. Tollerton: Yes. You refer to an article that was written for the Railway Age Gazette?

Mr. Sheean: I refer to Exhibit 51 of Mr. Carter's.

Mr. Tollerton: I do not think I have got Exhibit 51; but I know, of course, what it refers to. What is it you wished?

Mr. Sheean: Well, I think you were quoted here, Mr. Tollerton—

Mr. Tollerton: Yes; in Exhibit 51.

Mr. Sheean: Yes, page 7.

Mr. Tollerton: Yes; it is a quotation: "The Baldwin Locomotive Works (Advertisement) Railway Age Gazette, January 30, 1914, p. 45."

Mr. Sheean: Will you just give us the part of your article that they quoted there?

Mr. Tollerton: The heading is, "Tonnage Increase Forty-five Per Cent," and it goes on to describe some tests made as between Mikado locomotives and Consolidation engines on the Missouri, Kansas and Colorado divisions.

Mr. Sheean: What else did you say, Mr. Tollerton? Did you say anything else following the part of the article that they quote there?

Mr. Tollerton: Oh, yes. While this article is shown in this exhibit as being the entire article, they left off the last paragraph.

Mr. Sheean: Just read that last paragraph that was left off, as it appears in this advertisement?

Mr. Tollerton (reading): "Daily reports show that the

Mikados make the trip of 126 miles on the same amount of coal as consumed by the Consolidation, viz., ten tons. The average consumption of coal per 1,000 gross ton miles with the Consolidation locomotives was 96 lbs. as compared with 66 lbs. for the Mikado, a decrease of 30 lbs. per gross ton miles, or 31 per cent. On other divisions the Mikado locomotive has proven itself to be a decided factor in fuel economy, there being large reductions in fuel consumption where the traffic is such as to permit the locomotives to haul their full rating. The performance of the Mikado locomotives thus far indicates their value for this class of service.''

The Chairman: We will take an adjournment until 10 o'clock tomorrow morning.

(Whereupon, at 5 o'clock P. M. on February 4, 1915, an adjournment was taken until Friday, February 5, 1915, at 10 o'clock A. M.)

IN THE MATTER OF THE
ARBITRATION
between the
WESTERN RAILWAYS
and
BROTHERHOOD OF LOCOMOTIVE ENGINEERS
and
BROTHERHOOD OF LOCOMOTIVE FIREMEN AND ENGINEMEN
under the Act approved July 15, 1913, *by agreement dated August* 3, 1914.

Chicago, Illinois, February 5, 1915.

Met pursuant to adjournment at 10:05 A. M.
Present: Arbitrators and parties as before.

W. J. TOLLERTON was recalled for further examination and, having been previously sworn, testified as follows:

Mr. Sheean: Mr. Tollerton, have you any memorandum of corrections you wanted to make this morning?

Mr. Tollerton: I have, but they won't be ready till noon, Mr. Sheean. Quite a few corrections, Mr. Sheean, but merely in spelling.

Mr. Sheean: Now, Mr. Tollerton, looking over your testimony I am not sure that I fully understand the effect of the application of a superheater, as compared with the saturated steam engine, as to the ability to handle any increased tonnage. My understanding is that there is no difference in the starting effort of the two engines?

Mr. Tollerton: Yes; as my testimony indicated yesterday, there is no difference.

Mr. Sheean: Keep your voice up, please.

Mr. Tollerton: There is no difference in the starting effort of a superheater and a non-superheated engine of identically the same proportions. However, as the superheated engine improves, or is more efficient at speed, it is possible, under ideal operating conditions, to handle a slightly greater tonnage with

a superheated engine. Now, I think this point covers the ground: Invariably all the tests with the saturated and superheated engines in freight service, of similar size, which are quoted, show an increase in tonnage when the engine is superheated. This may be due to any one or more of three reasons. First, the saturated engine was either not rated to its maximum capacity, or, if supposed to be in maximum service, the rating was shaded slightly, to insure no danger in having to double a hill. This latter, where heavy movement of tonnage is found, will invariably be found to be the case. Second, the superheated engine, due to its greater power, at speeds, can approach a ruling grade at much higher speed, and change what would be, to a saturated engine, a ruling grade, into a momentum grade for a superheated engine. Third, many of the ruling grades for saturated engines may be taken advantage of by the superheated engine, on account of its greater speed. So that if the tonnage rating on a particular division was made, because of some ruling grade, not at the starting point, a superheated engine might carry over that ruling grade heavier tonnage than a saturated engine would.

Mr. Sheean: If it could approach the ruling grade at speed.

Mr. Tollerton: If, for any cause, it was necessary to stop the train at the base of the hill, it could not start any more than the saturated engine, but if the prevailing grade was at some other point than the initial starting point, and the superheated engine could approach that grade at speed, it would carry over there a slightly increased tonnage over the superheated engine.

Mr. Sheean: Than the saturated?

Mr. Tollerton: Than the saturated, yes.

Mr. Park: I did not clearly understand the reason. Is it the same principle that would apply to an oil burning engine, in being able to keep the maximum steam pressure?

Mr. Tollerton: That is, of course, one advantage, but due to the higher cylinder temperature of superheated steam, you get more efficient horse power at speeds, and it is velocity that carries a weight over a grade. So long as you can keep up speed, you will go over by velocity, and that is horse power.

Mr. Sheean: Mr. Tollerton, you spoke yesterday of these tests, which you have summarized in the exhibit presented yes-

terday as having been made under uniform instructions. Are the papers which I hand you now the forms and the instructions which were issued to the railroads making these tests? Will you, Mr. Burch, pass around those marked Exhibit 36?

Mr. Tollerton: Yes; these are the complete forms that went out to the railroads, with the circular letters accompanying same, to make the test that I testified to yesterday.

Mr. Sheean: We offer this as Exhibit 36.

(The document so offered and identified was received in evidence and thereupon marked "Railroads' Exhibit No. 36, February 5, 1915.")

Mr. Sheean: At the adjournment time last evening, Mr. Tollerton, you had called attention to an article that was quoted in Exhibit 51, prepared under the supervision of W. S. Carter and presented by Witness D. B. Robertson. Have you caused to be prepared an exhibit which sets out in black type the part of the articles quoted in Exhibit 51, and in red type the parts of the same articles which did not appear in Exhibit 51?

Mr. Tollerton: Yes.

Mr. Sheean: You have not taken all of Exhibit 51 and made this comparison?

Mr. Tollerton: Have you got Exhibit 51 there?

Mr. Sheean: Yes; here is a copy of Exhibit 51.

Mr. Tollerton: Your question again, please.

(Question read by stenographer.)

Mr. Tollerton: No; only that portion of Exhibit 51 that refers to "Evolution of increased power and tonnage"; quotations from railway technical experts and publications, prepared under the supervision of W. S. Carter, and presented by Witness D. B. Robertson.

Mr. Sheean: This is the part of the exhibit which was presented and in connection with which Mr. Carter stated that it was the purpose of the exhibit "to prove that railway authorities agree with us in our contention in these matters."

Mr. Park: What is the red type?

Mr. Sheean: The red, as shown by the first pages, is printed matters taken from the same article that did not appear in Exhibit 51.

We offer this exhibit No. 37 in evidence.

(The document so offered and identified was received in

evidence and thereupon marked "Railroads' Exhibit No. 37, February 5, 1915.")

Mr. Park: That is, the continuity of the article is preserved by the red?

Mr. Tollerton: What is that, sir?

Mr. Park: Does the red preserve the continuity of the paragraphs?

Mr. Tollerton: The red completes, in a general way, that which was left out of the original Exhibit 51. This is an identical reprint of the article from which these quotations were taken, and the red printing is that portion of the article that was left out in Exhibit 51.

Mr. Nagel: And it is not done in a general way, but it is accurately done?

Mr. Tollerton: Accurately done, except some very few of these articles were very long—

Mr. Sheean: Right in that connection, if you will turn to page 4, Mr. Tollerton?

The Chairman: I would like to ask the witness a question right there.

Is it the purpose of this exhibit to show that this portion of the article was omitted without any reference to the fact that there was something in addition to that which was quoted by Mr. Carter, or is it simply to show that, while these statements were made, certain other statements were made bearing on other phases of the question?

Mr. Sheean: It is to show, if your Honor please,—turning to page 4 for instance—that a sentence was printed in part, leaving out the latter end of a single sentence, reading "with no increase in actual coal consumption," which was a part of the sentence.

The Chairman: Then it is offered with a view of discrediting the statement in the exhibit?

Mr. Sheean: Yes, it is offered with a view of discrediting the statement.

The Chairman: I did not know, and I wanted to ascertain the purpose.

Mr. Carter: May I make a statement, Mr. Chairman and Mr. Sheean?

The Chairman: Certainly.

Mr. Carter: The quotations were only to show, as indicated by the exhibit, the increased power of locomotives and increased tonnage of trains, and had no regard to any other matter. I think Exhibit 51 will specifically set forth that fact. Wherever there was anything pertaining to the increased power of locomotives and increased tonnage of trains, it was here introduced, but it had nothing whatever to do with coal consumption.

Again, I want to say that in this exhibit there are three periods at the end of the article, which, to a printer, means that other portions are omitted.

The Chairman: You indicated that by three periods, did you?

Mr. Carter: Yes, sir.

The Chairman: That is either done by three periods or by three asterisks.

Mr. Sheean: I want, Mr. Tollerton, just to call attention to some few of these. Taking this one to which I just adverted, at page 4 of this exhibit.

Mr. Tollerton: You refer to "Limit not yet reached"?

Mr. Sheean: "Limit not yet reached." That is taken from page 4 of Exhibit 51, and apparently a part of the sentence as printed here, "with no increase in actual coal consumption," was omitted from the sentence as quoted at page 4, of Exhibit 51.

The Chairman: What page are you reading from of this exhibit?

Mr. Sheean: Page 4 of this exhibit sets out in red ink the part of the sentence omitted in the part that was quoted.

The Chairman: Oh, yes; I see now. After the word "service."

Mr. Sheean: And through the rest of that article, "Limit not yet reached," for instance at page 5, "These locomotives are equipped with automatic stokers and Emerson superheaters," did not appear.

Mr. Tollerton: That was left out of the article.

In the next paragraph, "The superheaters are of the Schmidt type, and the locomotives use oil for fuel," was left out of the article.

In the next paragraph, "The Southern Pacific received 15

Mallets of the 2-8-8-2 type," "These are oil burners," and other quotations, were left out of the article.

Mr. Sheean: So on page 6, Mr. Tollerton, the article there quoted, apparently a part of the sentence which completed the sentence "with no appreciable increase in coal consumption" was left out.

Mr. Byram: Is there any star in the original exhibit after the word "Mikados?" Does it show there is anything omitted in that sentence?

Mr. Tollerton: I think that in every case their exhibit shows that the three periods, not three asterisks, but three periods or dashes protect each one of their articles.

Mr. Byram: Are there three periods after the word "Mikados?"

The Chairman: Well, ordinarily that would indicate that something has been omitted from the article from which the person is reading, wouldn't it?

Mr. Sheean: Does it indicate that a part of the sentence is quoted without completing the sentence?

The Chairman: Well, I don't know as to that.

Mr. Sheean: We make no point upon asterisks which show omitted sentences, but as to quoting an article without quoting a sentence completely and not noting that in any manner we did not know—at least, this Committee, that that was a usual and customary practice.

The Chairman: I am not prepared to rule on that.

Mr. Sheean: Page 7, Mr. Tollerton, from Exhibit— Mr. Byram, I interrupted a question of yours, didn't I? What was the question?

Mr. Byram: I asked the question if there was any indication in the original Exhibit 51, on page 5, to show that there was any omission after the word "Mikados" in the third paragraph.

Mr. Tollerton: I am reading at the point. There are three dashes following the word "Mikado."

Mr. Carter: Pardon me; you didn't get it in your reprint, did you?

Mr. Sheean: We printed the sentence complete.

Mr. Tollerton: We completed the article.

Mr. Stone: But you left out our periods, so as to make it read better.

Mr. Shea: Mr. Tollerton, what is the purpose of those stars following the quotations in red?

The Chairman: I cannot hear what you say, Mr. Shea?

Mr. Shea: I asked Mr. Tollerton what those stars indicate following the quotations in red type?

Mr. Tollerton: They indicate that the entire article as explained in the first place is not herewith printed. In many cases—

Mr. Shea: I mean following the red type, the red stars.

Mr. Park: Take it on page 1.

Mr. Shea: Take on page 5. On page 5, the second line, is there anywhere down the line where those red stars appear?

Mr. Tollerton: On page 5?

Mr. Shea: Yes.

Mr. Tollerton: The red stars in this case here show the asterisks as appearing in the original quotation, the red being the omitted portion of the paragraph.

Mr. Shea: Well, then, you omitted something, did you not?

Mr. Tollerton: No, we merely filled in the paragraph.

Mr. Shea: Now, take the third paragraph after "while the remaining eight use oil for fuel," then there are three stars. Is there anything omitted there?

The Chairman: Fortunately we have three printers on this Board. The two gentlemen to my right, and I happen to be one myself. I don't suppose we shall have much trouble.

Mr. Shea: What do those three stars indicate?

Mr. Tollerton: The three stars would indicate that we had not completed the article.

Mr. Shea: Then why didn't you complete the article.

Mr. Tollerton: Because it had no bearing on this general subject. Some of them are two or three pages long.

Mr. Shea: Is not that just what Mr. Carter did?

Mr. Tollerton: No, because in this case they were extracts from the center paragraph.

Mr. Carter: On what subjects?

Mr. Shea: That is your opinion, is it not?

Mr. Tollerton: No, it is referred to right here.

Mr. Shea: You don't know why he omitted anything? It is simply an assumption on your part?

Mr. Tollerton: Only to change the entire character of the original article.

Mr. Shea: Well, now, Mr. Tollerton, weren't you guilty of the same charge, when you have omitted something?

Mr. Tollerton: Not at all. We completed the paragraph, or finished the article, as the case may be.

Mr. Shea: You just stated now you had omitted something.

Mr. Tollerton: It is possible, as I said before, that some of these articles covered two and three pages of printed matter, and went into other subjects entirely than the subjects discussed here.

Mr. Shea: Well, that is just what Mr. Carter stated.

Mr. Tollerton: No, I don't take that view of it at all.

Mr. Shea: You are just simply expressing an opinion, not a fact.

Mr. Park: Mr. Tollerton, this would clear it, in my mind, if you would give us an illustration, by reading and explaining what difference it made in the presentation.

Mr. Tollerton: We will refer to page 5.

Mr. Shea: Mr. Tollerton, now please, I would like your attention for just a moment. Mr. Carter said that he quoted everything pertaining to the subject which he wished to bring out, did he not?

Mr. Tollerton: I do not recall just what his remarks were.

Mr. Shea: May I ask if that is a fact?

Mr. Carter: Mr. Shea, the title of the pamphlet known as Employes' Exhibit 51 is this: "Evolution of increased power and tonnage."

Mr. Park: Mr. Carter, what date was that introduced, please?

Mr. Carter: I do not remember the date.

Mr. Park: The Exhibit does not show?

Mr. Carter: No, sir; it was Exhibit 51, one of the last of the Employes' Exhibits. I think there were two or three, after that. In reply to your question, Mr. Shea, I will say that the only purpose of this pamphlet was to show that the power had increased, and the tonnage of trains had increased.

Mr. Shea: As indicated in the caption; is that a fact?

Mr. Carter: As indicated here, yes, sir, and I had no regard whatever to coal consumption. That is treated elsewhere.

Mr. Sheean: Mr. Carter, I notice in your index of those superheaters, increased tonnage and coal consumption per hour.

Mr. Carter: Where is that?

Mr. Sheean: That is on the third page of your exhibit.

Mr. Carter: Well, turn to that, and you will find it.

Mr. Sheean: That is one of the items indexed here as being shown on this exhibit, superheaters, increased tonnage and coal consumption per hour.

Mr. Carter: What page is that?

Mr. Sheean: 33.

Mr. Carter: Turn to page 33.

Mr. Shea: Now, Mr. Tollerton, one more question. Did you not follow identically the same practice as Mr. Carter?

Mr. Tollerton: No, I—

Mr. Shea: One moment. In leaving out something that had no bearing on the subject.

Mr. Tollerton: No.

Mr. Shea: Is not that what you did?

Mr. Tollerton: No.

Mr. Shea: What has been your testimony to a previous question?

Mr. Tollerton: Well—

Mr. Shea: You just stated that you did.

Mr. Tollerton: Qualified to this extent. Some of the articles were printed in their entirety, complete. There were a few of them that were so voluminous in character that we only carried the illustration to cover the ground covered in Mr. Carter's exhibit.

Mr. Shea: Is that not just exactly what Mr. Carter did? He stated that he omitted things that had no bearing on the subject which he wished to bring out. You stated that you omitted certain portions of the article, that you thought had no bearing on matters that you desired to bring out. Is that not a fact?

Mr. Tollerton: No. Refer to page 6. Expectations surpassed, from Exhibit No. 51, page 5. This exhibit, as it appeared—this article, as it appeared in Exhibit 51, leaves out a

line in the middle of the sentence. We have merely completed that line.

Mr. Park: Bottom of page 6?

Mr. Tollerton: Yes, sir; it leaves out a line in the last sentence. We have merely completed the line.

Mr. Carter: What page is that in Exhibit 5, please?

Mr. Tollerton: Page 6.

Mr. Park: Now, what effect would that have on the submission? Would it change the sense of it?

Mr. Tollerton: It shows that with the increased tonnage handled, there was no increase in the labor to the fireman.

Mr. Shea: What page is that?

Mr. Tollerton: That is No. 6 of this exhibit.

Mr. Burgess: Where does it read that?

The Chairman: That is the red matter, beginning after 1,350 tons. Is that the place?

Mr. Tollerton: Yes, sir, in the last paragraph; and with the new type of locomotive, there is no increase in coal over that formerly used.

The Chairman: Now, is there anything after the word "tons" to show that something has been omitted?

Mr. Tollerton: Sir?

The Chairman: In the original print, that is, Mr. Carter's Exhibit, is there anything after the word "tons" to indicate that something has been omitted?

Mr. Carter: Turn to page 6, please.

Mr. Shea: We have not got your Exhibit, Mr. Carter, and I would like to have it.

Mr. Carter: Mr. Chairman, we have gone after some more exhibits.

Mr. Stone: Mr. Chairman, may I ask a question, for information?

The Chairman: Yes.

Mr. Stone: Is it the claim made by the railroads that you must always quote a sentence in full, and that you cannot leave out any words, by either asterisks or periods after it?

Mr. Sheean: It is the claim of the railroad companies that it is improper to quote a part of the sentence, which, standing alone, gives an entirely different meaning than the sentence when read in its entirety.

Mr. Stone: We would not agree with the contention of the counsel for the railroads, in a thousand years. We claim the right to leave out as many words as we please, when we show by asterisks and periods, before and after, that certain words and parts of sentences are omitted, and in every case we believe we have shown it is a quotation and certain parts of it are omitted.

The parts that do not refer to what we were talking about, the increase of power and the increase of tonnage, are omitted; and in every instance it is shown that there is an omission.

Mr. Burgess: That would indicate that there was no intent on the part of Mr. Carter, would it not, to conceal anything in connection with this matter?

Mr. Stone: Mr. Carter and myself prepared these exhibits jointly, and there was no desire or intent on our part to conceal anything.

Mr. Nagel: One moment. It appears to me that we have the full statement before us now. We have heard from both sides upon all the considerations, and have all the reasons as to why the exhibits were prepared in that form. In other words, it appears to me that we have all the facts necessary for our decision, so that it hardly seems necessary to go any further into what motive or ground may have prompted the one party or the other.

Mr. Carter: Our statement was in reply to the accusation that we had been unfair. If you would deprive counsel for the railroads of the privilege of making such accusations, why, then, we would not have to explain.

Mr. Nagel: I merely suggest that we have heard the statement from both sides and, for my part, I do not see that it serves any purpose to pursue the investigation further.

Mr. Stone: All right.

Mr. Nagel: I simply submit that to the Board.

Mr. Park: Mr. Nagel, as a matter of personal privilege, inasmuch as I was quoted, and other railroad officials. Mr. Carter stated that he intended to prove by this submission that eminent officials of the railroads took a certain view; but if the entire article is diametrically opposite, and shows that that was not a fact, of course, it has a bearing, in my opinion, on the ex-

hibit, as to its value. I think it could well be left to the Board to read it.

Mr. Sheean: There is, on page 1, the sentence or paragraph following the paragraph which was quoted in your article, Mr. Park; on page 1 the following paragraph is quoted—

The Chairman: This exhibit will be received and considered as other exhibits are considered, and we will pass on.

Mr. Sheean: That is all.

CROSS EXAMINATION.

Mr. Stone: Mr. Chairman, in attempting to cross-examine this witness I realize that we have a pretty big job ahead of us, because when a mechanical expert goes on the stand and disagrees with every authority, living and dead, on these same subjects, it is going to be quite some job; and if we become tedious on this I hope the Board will bear with us, because it is a very important matter. It comes right to the basic principle, almost, of the whole contention and what brings these questions before this Board.

The Chairman: It is not our purpose to limit either side as to cross examination. Use your own judgment, Mr. Stone.

Mr. Stone: First I want to read to you and bring before you the fact that Mr. Tollerton does not agree with the experts that the railroads have used in the other cases in regard to the engineers going to weight on drivers instead of the railroads. I think the engineers were satisfied with the cylinder basis, and I think they perhaps would have been glad to remain there, but the railroads insisted that we take the other position.

I want to read to you, first, from the statement of the expert who represented the railroads at the Eastern Arbitration. This is the Arbitration between the Brotherhood of Locomotive Engineers and the railroads East of Chicago, in what is known as the Eastern territory, in 1912.

The Chairman: What is the name of the witness?

Mr. Stone: Worthington. He was the expert, or, rather, the expert operating official who conducted their entire case and presented it.

Mr. Park: Was Mr. Worthington a mechanical man?

Mr. Stone: He was, years ago, before either Mr. Tollerton or myself were on the sphere of action at all.

Mr. Park: As a clerk?

Mr. Stone: No; as superintendent of motive power of the Southern Pacific.

Mr. Park: Was he?

Mr. Tollerton: Chief clerk to the superintendent of motive power.

Mr. Stone: He says he is a mechanical man. I don't know how many of these mechanical men have been chief clerks.

Mr. Park: I think that was the extent of his experience.

Mr. Stone: But the fact remains that they took a man from the Western territory to present their case for the 54 railroads east of Chicago.

Mr. Park: He was president of an Eastern railroad at that time, was he not?

Mr. Stone: I believe he was, and afterwards came west again; but most of his railroad experience had been in the West—as a builder-up of wrecked properties, I might add.

Quoting from page 158 of the report of the Arbitration, I read:

"I do not believe the cylinder traction is a proper dividing line to differentiate in the wages of the enginemen. The Baltimore & Ohio System, based on the driving weight, to my mind, is far better. I am not certain, however, that I would have the dividing line where they have it. That is largely a matter of point of view, and that opinion would be formed by the class of power that you would have on a railroad, and would be governed entirely by local conditions.

"The reason why I do not think cylinder traction is a proper basis, is this:

"If you were to make an analysis of the locomotives on one of the larger roads and get the relation that the cylinder power in percentage bears to the driver weight, you would find that the cylinder traction would vary from less than 20 per cent. to over 30 per cent. The coefficient of adhesion of a locomotive is fixed by its driver weight, and is controlled by natural law. What I mean by that is, if you were to take 20 locomotives of different sizes and test every one of them out here to arrive at the coefficient of adhesion, that is, the slipping point, you would find that under the conditions which exist here now every one of them would slip at exactly the same percentage of the driver

weight. Now, that being true, the limited pulling capacity of that locomotive is the point at which it slips, and that law would be accurate. I will admit that the coefficient of adhesion varies according to weather conditions.

"Mr. Van Hise: But it does not vary according to the size of the drivers?

"Mr. Worthington: No, it will not vary according to the size of driver. They will both slip. If they slip, take a day like this out here, you might run up to 26 per cent. of the driver weight, and if you should take 20 engines, large and small drivers, they will all slip at that point, every one of them; when the load gets to that relation of the traction to the driver weight, they will all slip here. Another reason why cylinder traction is misleading—"

For fear I may be accused of leaving out something, I will read the entire rest of the paragraph, although the sentence ended there.

"I am pretty positive of that, because I made a good many tests of that in the West when I made tests of tonnage rating of locomotives"—

It does not seem possible to me that a man who was merely a chief clerk would be out making tonnage tests of rating of locomotives for the Southern Pacific Company.

(Continuing to read from Mr. Worthington's testimony): "and we placed a maximum at which we would load our locomotives regardless of what the calculated cylinder traction was, of 23½ per cent. of the driver weight, and we did not load any locomotives whose cylinder traction went above that at a higher point than 23½ per cent.

"Another reason why cylinder traction is misleading is this. Mr. Stone spoke to you yesterday about the superheaters that are being put in these locomotives, and the intense heat that they develop, which passes into the cylinder. The superheater enables the railroad to carry a lower steam pressure in the boiler, and most of the roads build in superheaters that would normally have 200 pounds pressure, are able to carry a pressure of 170 pounds. They get the same locomotive traction because they increase the size of the cylinder; they get the same traction because they give larger volume for steam.

"Mr. Van Hise: Do you include in any of your statistics,

any point as to driver weight that you would make as the dividing line?

"Mr. Worthington: Yes, I do not believe we can get away from the theory that the engineer is entitled to his share of the increased productivity of his labor. I do not believe we can get away from that theory. I think he is entitled to his full share myself. Just how we can arrive at that and make it exactly right, is difficult to say. My judgment is at the present time that he has had his full share, and in differentiating between locomotives of different sizes, we must find some dividing line. And I think personally that driver weight is a better dividing line than cylinder traction, although cylinder traction is more generally used. Most of the roads use cylinder traction.

"Mr. Judson: Why is that so generally used on the different railroads if it is faulty?

"Mr. Worthington: The only answer I can make to that is that it is quite likely it had not occurred to the railroad managers who fixed it in the first place"—

Note the managers fixed it, not the engineers. (Continuing:)

"that the driver weight was a truer measure. I do not think it is any other. The truth is, I would not know much about this problem myself, if I had not spent four years studying it. If I had gone up through the line of railroad service and had not had charge of the tonnage rating of locomotives, I might never have discovered that myself. But for the reasons I state, I believe the driver weight is a better measure."

Mr. Byram: I believe you said at the beginning that the engineers were satisfied with the cylinder basis as the measure for determining their pay, and probably would have continued so if they had not been urged to change by the railroad managers. Is that correct?

Mr. Stone: Yes, sir.

Mr. Byram: How do you feel about it now?

Mr. Stone: That water has gone over the dam. It is too late now.

Mr. Byram: You would not be satisfied now.

Are the railroads urging you at the present time to adopt the weight on drivers basis in this movement?

Mr. Stone: No; they are not. In fact, the railroads are

not urging us to do anything at this present time. The only thing the railroads are trying to do at the present time is to convince the public that they are too poor to pay an increase.

Mr. Byram: Did this committee urge you, in its negotiations, to accept the weight on drivers basis?

Mr. Stone: This committee did not urge us to do anything in the thirty-five conferences. They simply "stood pat," if you will excuse the slang.

Mr. Byram: Did you discuss the basis of weight on drivers as compared with cylinders, with the committee, during your negotiations?

Mr. Stone: I think we discussed it in a general way, but we never arrived at any conclusion, or agreed on any one point in the articles presented.

Mr. Byram: I understand you didn't agree, of course, but did this committee, representing the railroads, ask you to accept a weight on drivers basis, when you discussed it?

Mr. Stone: I don't recall that they did, Mr. Byram.

Mr. Byram: Then the committee has not proposed any change in the present basis.

Mr. Stone: No, but—

Mr. Byram: And the engineers were satisfied with the cylinder basis until, as you say, some one representing the railroads in the East, urged them to adopt the other basis.

Mr. Stone: In reply to you, I want to read the position taken by the Managers' Association—

Mr. Byram: Would you mind answering my question first?

Mr. Stone: Will you read it, please?

(Question read by reporter as follows: "And the engineers were satisfied with the cylinder basis until, as you say, someone representing the railroads in the East urged them to adopt the other basis.")

Mr. Stone: Not exactly altogether in the East. A number of the Western managers. We discussed the thing in 1910, and Mr. Emerson, who was one of the committee, and was the chief mechanical man of the Great Northern System at that time, discussed at length our offer of cylinder basis, but counseled that we go to weight on drivers at that time.

Mr. Byram: I was asking about the engineers, not about Mr. Emerson. I was asking—will you please read the question?

(Question read by reporter as follows: "And the engineers

were satisfied with the cylinder basis until, as you say, someone representing the railroads in the East, urged them to adopt the other basis.'')

Mr. Stone: The engineers were satisfied with the cylinder basis until the railroad officials, both East, West, South and Southeast, commenced to talk about weight on drivers, and the reason they did so was because they discovered, by superheating their engines and putting on longer cylinders, they could increase the tractive power of the engines about 33 to 40 per cent.

Mr. Burgess: Mr. Stone, did not Mr. Grant Hall, representing the Canadian Pacific, urge a different method of computing the Engineers' wages than the cylinder basis, at the 1910 conference?

Mr. Stone: Yes, sir; both Mr. Grant Hall and Mr. Emerson, the two mechanical men on the committee, both urged some other basis, that the cylinder basis was no longer fair.

Mr. Byram: But I thought you said the committee never urged you to accept it.

Mr. Stone: I am talking about the committee of 1913.

Mr. Byram: Oh, this committee. This committee never proposed it.

Mr. Stone: Let me set you straight now. I have no desire to get this thing tangled at all, nor to make any play on words. Mr. Grant Hall and Mr. Emerson were the two mechanical men on the Conference Committee of Managers, in our wage movement of 1909-1910, and they discussed the matter with us.

In the discussion with the Conference Committee of which Mr. Trenholm was chairman, they did not urge any weight on drivers, or cylinder dimensions, either one, that I recall.

Mr. Sheean: Well, Mr. Stone, the Canadian Pacific was on that basis, a percentage, was it not, and had a schedule brought up in connection with the classification of engines of that character?

Mr. Stone: I think that is correct, yes.

Mr. Burgess: But, Mr. Stone, you understood Mr. Grant Hall was representing all the railroads, and not particularly the Canadian Pacific, was he, at that conference?

Mr. Stone: How is that?

Mr. Burgess: Mr. Grant Hall was one of the Committee

representing all the railroads. He was not particularly representing the Canadian Pacific, in your opinion?

Mr. Stone: Mr. Grant Hall was one of twelve representatives for the fifty-eight railroads, and was speaking his opinion on this as a mechanical expert.

Mr. Burgess: And in making his argument before your committee, do you recall that any of the other members of the Managers' Committee dissented from what Mr. Hall stated?

Mr. Stone: I did not hear any of them, at least. I don't know what happened in executive session after we adjourned.

Mr. Burgess: Oh, no.

Mr. Stone: To also confirm the statement that it was the Conference Committee of Managers, or the Managers' Association that insisted on going to weight on drivers, I want to read to you a statement of Chairman Nixon, of the Western Managers' Committee, in his conference with the Brotherhood of Locomotive Firemen and Enginemen in 1910. This is the arbitration. It is one of the exhibits, is it? (Addressing Mr. Carter.)

"The proposition of the Managers' Committee as to the first of these two problems—" Well, I will read what the two problems are.

"First, the difference between Article 2, in number, viz: first, the establishment of a fair and sound method of determining the basis on which the pay of firemen should be differentiated between different classes of engines.

"Second, the determination of a fair and reasonable method of computing overtime.

"The proposition of the Managers' Committee, as to the first of these two problems, is that tractive power is the only sound method for determining firemen's rates, and that weight on drivers is the simplest and best method of determining tractive power."

That was the chairman, speaking for all the railroads west of Chicago, Mr. Nixon.

Mr. Sheean: Would you just as soon read Mr. Carter's reply to that letter, speaking for all the firemen, so that we may have the whole thing?

Mr. Stone: I have not it here. Perhaps Mr. Carter has it in his files.

Mr. Byram: Mr. Stone, would the engineers prefer a weight on drivers basis to the cylinder basis, if it did not involve any increase in compensation?

Mr. Stone: I think so, if we could once establish what these engines really weighed, and that weight would remain there. Mr. Carter does not have it in his files, he says. We will get it later.

Mr. Sheean: We will get it in a moment.

Mr. Stone: Mr. Tollerton, I think you testified yesterday that you had been an officer in charge of men ever since you were twenty-one years old?

Mr. Tollerton: Yes, sir.

Mr. Stone: You also testified you had been in office, since 1891, and prior to that time, between 18—

The Chairman: Prior to that time. Instead of nodding your head, say yes or no, so that the stenographer can get it.

Mr. Tollerton: Yes.

Mr. Stone: And prior to that time, between 1886 and 1891, shop and road experience.

Mr. Tollerton: Yes, sir.

Mr. Stone: When you say road experience, what class of service do you refer to?

Mr. Tollerton: Locomotive fireman.

Mr. Stone: You fired how many years?

Mr. Tollerton: I fired less than one year.

Mr. Stone: And that has been your entire experience in the transportation service, outside of an official?

Mr. Tollerton: I do not quite understand that question.

Mr. Stone: What I mean—read the question again. I do not know how to make it any plainer.

(Question read by stenographer.)

Mr. Tollerton: I said I started in the railroad business, in 1886. That would give me five years in the transportation.

Mr. Stone: You consider shop part of the transportation?

Mr. Tollerton: Most assuredly, particularly roundhouse.

Mr. Stone: Well, outside of the less than a year you were fireman, what did you do with the other four years and a fraction—what was your experience?

Mr. Tollerton: Shop man.

Mr. Stone: Machinist?

Mr. Tollerton: Yes.

Mr. Stone: In roundhouse?

Mr. Tollerton: Part of the time.

Mr. Stone: And since you have been twenty-one years old, you have been an official of a railroad?

Mr. Tollerton: In a minor position, up to the present position.

Mr. Stone: Then, you must have started in as a fireman or machinist at the age of sixteen?

Mr. Tollerton: Yes, that is true; sixteen and one-half, to be exact.

Mr. Stone: There was no age limit in that early day?

Mr. Tollerton: Well, as a machinist's apprentice, you know they start earlier than locomotive firemen.

Mr. Stone: I think you stated that the brick arch was a recent invention, or, at least, has been put on in the last few years, as a labor saving device. Is it not a fact that we have had brick arches in these engines, on different roads, for the past thirty years?

Mr. Tollerton: Yes. I would not say as to thirty years, because my memory does not go back quite that far in railroading, but brick arches have been used, to more or less extent, for a great many years, but it is only within the past few years that the arch has been perfected to make it an entire success, and it is rapidly going into use on the railroads.

Mr. Stone: If you will talk to the Board, Mr. Tollerton, I will hear you. I think you said that your memory did not go back thirty years, in railroading, yet, according to your own statement, you have been an official thirty-one years. What caused that lapse of memory in the beginning?

Mr. Tollerton: Does it make it thirty-one years, from '91 to the present time?

Mr. Stone: From '86. Twenty-nine years.

Mr. Tollerton: Not as an official.

Mr. Stone: As an official, you have been twenty-four years. You also stated that a number of these brick arches were put in, lying on water tubes. Are they still keeping up that practice?

Mr. Tollerton: Yes, sir.

Mr. Stone: Has it not been condemned by the Boiler Inspection Bureau of the United States?

Mr. Tollerton: No, sir.

Mr. Stone: Still permitted?

Mr. Tollerton: Absolutely.

Mr. Stone: Have quite a good many accidents, do you not, from bursted water tubes, and becoming mud burned?

Mr. Tollerton: No, sir.

Mr. Stone: Are you speaking now as an expert for these railroads, or for the Rock Island?

Mr. Tollerton: I am speaking, of course, as to my knowledge of the Rock Island practice, and general knowledge of the practices elsewhere. There are some railroads that have an arch that fastens to the side of the firebox. The general practice is to carry the brick on water tubes.

Mr. Stone: You stated they were put in to retard the gases and to aid combustion.

Mr. Tollerton: Yes, sir.

Mr. Stone: Is it not a fact that they were adopted by the railroads, largely, to prevent the cold air from striking the flue sheet and causing leaky flues?

Mr. Tollerton: No, sir.

Mr. Stone: They do not have that effect.

Mr. Tollerton: They have that effect, in a measure, but their principal effect is to save fuel.

Mr. Stone: Is it not a fact that an engine has to be drafted differently, in the front end, when you have a brick arch?

Mr. Tollerton: There are some slight changes in the petticoat pipe.

Mr. Stone: Is it not a fact that when the arch falls down in one of these big, modern locomotives, that it is almost impossible to keep coal in them then?

Mr. Tollerton: The arch does not fall down. If the arch fell down, or any other accident happened to the locomotive, the engine crew would give up their train and come in light.

Mr. Stone: Mr. Chairman, I cannot let a statement like that go unchallenged, because I have been too many years in the cab myself, and many a fire brick I have hooked out of the door, and thrown out the gangway, on the right of way, when it did fall down.

Is it not a fact, on these oil burners, that you not only put

in a brick arch, but you line the side sheets and everything else with fire brick, to protect the sheet from intense heat.

Mr. Tollerton: You line the side sheet with fire brick, for a short distance up, to protect the side sheet from the intensity of the flame of the burner?

Mr. Stone: And you also have to have a brick arch, for the same purpose.

Mr. Tollerton: Are you speaking of oil burners?

Mr. Stone: Yes, sir.

Mr. Tollerton: Well, in the oil burners that we have, we have no brick arch.

Mr. Stone: Do you not have the entire sides and everything covered with brick?

Mr. Tollerton: For part of the distance up, but not the entire sides of the side sheet.

Mr. Stone: What is the life of a firebox, with an oil burner, as compared with coal?

Mr. Tollerton: I think about equal.

Mr. Stone: I understood you to say yesterday that 100 per cent of the roads were putting on the automatic fire door. Was that correct?

Mr. Tollerton: No; if my testimony reads that way, I should have said 100 per cent of the locomotives we are purchasing.

Mr. Stone: But you are not equipping the locomotives that go through the shop, with the automatic door, are you?

Mr. Tollerton: The large engines, yes.

Mr. Stone: Your exhibit shows 742 engines out of a total of seventeen hundred and something.

Mr. Tollerton: I do not recall what the exhibit shows.

Mr. Stone: What is the number of engines you have?

Mr. Tollerton: About 1,700—1,685 or 1,690.

Mr. Stone: You laid considerable stress, yesterday, upon the saving made by the superheater and the brick arch. I believe you claimed the brick arch saved 10 per cent, and the superheater 20 per cent of the fuel used?

Mr. Tollerton: Yes.

Mr. Stone: Or a total of 30 per cent if an engine is equipped with both?

Mr. Tollerton: Yes.

Mr. Stone: Do your tests on your chart here show that percentage between saturated and superheated?

Mr. Tollerton: You mean this? (Indicating chart.)

Mr. Stone: Yes, sir; the one you exhibited yesterday.

Mr. Tollerton: Oh, no; they don't show that, and I explained why, Mr. Stone, that they did not show it.

Mr. Stone: I think you also stated that a superheater did not commence to work until the engine got into speed. Is that correct?

Mr. Tollerton: The effect of the superheater is more apparent at speed. The superheater actually commences to work, at a slight degree, from the starting point, but it does not become efficient—its entire efficiency is not reached, until the speed has been obtained.

Mr. Stone: What rate of speed would you say where it first became 100 per cent efficient?

Mr. Tollerton: Where it first became 100 per cent efficient?

Mr. Stone: Yes.

Mr. Tollerton: Fifteen miles an hour.

Mr. Stone: You also stated the great showing made on the North Western, by the saving of coal on switch engines, did you not?

Mr. Tollerton: I do not think I mentioned coal on the North Western switch engines. There is not the same proportion of coal saved on superheated switch engines that there is on road engines.

Mr. Stone: Mr. Chairman, might I borrow my Exhibit 51 a minute, please?

The Chairman: Yes, sir.

Mr. Stone: So much has been said about the saving of coal on the North Western, by the superheater and the brick arch, that I want to read you what Mr. Robert Quayle, superintendent of motive power and machinery, says. He is the chief operating officer of the North Western.—chief mechanical officer, I mean, in the operating department.

Mr. Byram: What page are you reading from?

Mr. Stone: I am reading from page 33 of Exhibit 51, and there are a few stars to start off with, and then we quote:

"Coal saving questionable. We did not, however, find that he was doing his work with very much less fuel when we received

our monthly statements. Sometimes we thought that he did and at other times we were quite well assured that it was not so. But there is another factor that enters in there, that when a man has an engine that will do a little better than the other fellow, so far as the monthly performance is concerned, the performance sheet does not place it in evidence, because the train despatcher makes him do just a little more work, and he does it."

Mr. Byram: Does that refer to switch engines or road engines, Mr. Stone?

Mr. Stone: It does not say. He is talking about superheaters now.

Mr. Byram: As I understood, you were talking to the witness about the superheater on the switch engines, on the North Western.

Mr. Stone: I did ask him a question, just before that, about the saving. Several times the North Western was referred to yesterday, as showing such a wonderful saving.

Mr. Tollerton: That was in road service.

Mr. Stone: Suppose this applies to road service then.

Mr. Byram: That is a supposition then. We do not know that that is so, as I understand it, Mr. Stone.

Mr. Stone: I do not know whether he refers to switch engines or road engines. In making these tests, Mr. Tollerton, is it not a fact that in almost every instance they are made under favorable conditions?

Mr. Tollerton: Which tests do you refer to?

Mr. Stone: Tests in regard to any new appliance on a locomotive. Do you not nearly always have a picked crew and picked weather conditions to make it?

Mr. Tollerton: These two thousand tests here were made under average operating conditions. I want to read Circular Letter No. 1272 of the Conference Committee of Managers, and the instructions that went out covering these tests. Paragraph 3: "As far as possible, the severest conditions should be encountered in these tests, to show the maximum work required by the fireman. This, in order that we will be in a position to show that the most severe work required of the fireman is not beyond his capacity."

Mr. Stone: In making those tests, I do not understand

that the same class of engine was used, in both saturated and superheated, was it?

Mr. Tollerton: You mean on the same railroad, Mr. Stone?

Mr. Stone: Yes.

Mr. Tollerton: No, for the reason that the railroads did not report similar engines, equipped both ways.

Mr. Stone: In your opinion, then, is it a fair estimate to take an engine of one class, that is perhaps old and is not of a modern type, and is saturated steam, and then test it against an engine that has all the late equipments of every kind?

Mr. Tollerton: They do not make tests in that way.

Mr. Stone: You say they were on the same class, however.

Mr. Tollerton: I say they were on the same class, on the same railroad.

Mr. Stone: Well, on the same railroad, is it a fair test to take an engine of one class and test it against another?

Mr. Tollerton: They never make tests that way on the same railroad. If a test is made on a railroad, they take engines in like condition.

Mr. Stone: Is it your intention to superheat the smaller engines on the Rock Island?

Mr. Tollerton: It is not a question of what the Rock Island may do, but in the Western country, where coal costs five or six dollars a ton, it is very reasonable to suppose that they may superheat light engines.

Mr. Stone: If they demonstrate the saving of 70 per cent which you claim, why has it not been done long ago?

Mr. Tollerton: They have not the money. They are doing it as rapidly as their finances will permit.

Mr. Stone: If it will save 30 per cent in fuel, would it not be a good investment to raise some capital, perhaps, to make that? It would pay for itself in a year, wouldn't it, at that rate?

Mr. Tollerton: I am entirely more competent to answer on mechanical questions than on financial questions.

Mr. Stone: You are not the financial man of the Rock Island?

Mr. Tollerton: No.

Mr. Stone: Well, it relieves you from quite a burden! You spoke yesterday that the tractive effort of the saturated and the superheated engine was identically the same in starting.

Mr. Tollerton: Engines being identically the same.

Mr. Stone: Also, in reply to the Chairman, you said that superheating did not increase the tonnage of the engine, did you not—the tonnage rating of the engine?

Mr. Tollerton: That is at starting.

Mr. Stone: The fact remains, the superheated engine of the same type does handle more tonnage, does she not?

Mr. Tollerton: I think I made that perfectly clear this morning.

Mr. Stone: Is it not a fact, by superheating engines you can increase their tractive power to a very great extent?

Mr. Tollerton: Not without making some other change in the locomotive than applying the superheater.

Mr. Stone: But by superheating is it not possible to give an engine much larger cylinders, and still provide steam for it, and thus increase your tractive power from 30 to 40 per cent?

Mr. Tollerton: It is not.

Mr. Stone: Mr. Chairman, I have to disagree with the gentleman again. I have here the blue prints of the Great Northern. I want to read you what the Great Northern is really doing. They have an H-2 class of engine. I believe they are Consolidation. They are 22x30, or originally were 22x30, and carried 210 pounds of steam. Their tractive power was 35,350 pounds. These engines were superheated, and given cylinders 23½x30. The steam pressure was reduced to 200 pounds, and the tractive power is 40,820 pounds, an increase of 15 per cent.

Take their F-8 class, of which they have quite a number. They were originally 20x32, with a steam pressure of 210 pounds; a tractive effort of 39,090 pounds; they have been superheated, given cylinders 26x32, the steam pressure reduced to 160 pounds, and their tractive effort is now 53,000 pounds, an increase of 41 per cent.

So, regardless of the statement of Mr. Tollerton, here are engines in actual service today where it has been done.

Mr. Tollerton: There is no opportunity to increase the tractive effort of a locomotive by either enlarging the cylinder or increasing the steam pressure, unless the factor of adhesion makes that change permissible. The factor of adhesion being

the governing feature that a locomotive will start a freight train.

Mr. Stone: It is not so much a question of starting a train, is it, as keeping a train at speed after it is started that tells the story?

Mr. Tollerton: The governing factor in freight service is generally the ability of the locomotive to start the train.

Mr. Stone: No doubt all the members of the Board have ridden on these heavy passenger trains, and have felt the engineer, with one of these big modern superheaters, perhaps slack them three or four times to get them started from a station, and yet as soon as he gets them started he can run them 50 or 60 miles an hour.

Mr. Tollerton: Passenger locomotives are not influenced by their tractive effort at starting. It is the speed they must carry throughout the trip that influences the passenger engine as compared with the freight locomotive.

Mr. Stone: But according to your theory they could not handle any more than they could start, and yet it is quite common to slack them a number of times in starting a train from the station, isn't it?

Mr. Tollerton: I would say that with a passenger locomotive your tractive effort is not the governing influence, but it is the sustained effort that the engine will have at speed.

Mr. Stone: Take one of your saturated engines working at full stroke, starting a train, you would not mean to leave the impression with the Board that that engine could be kept on either steam or water and worked that way over the road, would you, in handling that tonnage?

Mr. Tollerton: I think you will find that a locomotive working at full stroke the speed is so reduced that the physical effort on the part of the fireman is greatly decreased. Speed is what burns coal.

Mr. Stone: I thought it was tonnage all the time.

Mr. Tollerton: No. The engine is consuming the least coal when it is working at full stroke and speed reduced.

Mr. Stone: You do, however, recognize quite a difference between tractive effort in starting and sustained tractive effort after the train is in motion, do you not?

Mr. Tollerton: Tractive effort falls very rapidly with speed. Horse power builds up.

Mr. Stone: Where do the two lines cross?

Mr. Tollerton: Tractive effort begins to fall at about ten miles an hour.

Mr. Stone: Well, this blue print that I have been reading from from the Great Northern, Mr. Tollerton, says "tractive effort." It does not say "horse power." It says "tractive effort of the engine."

Mr. Tollerton: I understand. Tractive effort will start to decrease at a speed of about ten miles an hour, and it drops rapidly as the speed increases, while horse power builds up.

Mr. Stone: How many pounds does it take to start a ton on a level track?

Mr. Tollerton: I have forgotten that, Mr. Stone.

Mr. Stone: It takes much more to start it than it does to keep it in motion at slow speed, doesn't it?

Mr. Tollerton: Velocity always aids in moving weight?

Mr. Stone: Until you get above a certain rate of speed, and then it increases very rapidly, doesn't it?

Mr. Tollerton: Well, your boiler capacity influences you then.

Mr. Stone: What happens to the boiler?

Mr. Tollerton: When it reaches beyond its capacity to supply steam to the cylinder.

Mr. Stone: Do you mean to say that the resistance of a ton of dead weight does not increase with the speed?

Mr. Tollerton: Oh, yes, it increases, of course. You have got your speed frictions.

Mr. Stone: Well, how fast does that increase?

Mr. Tollerton: That I could not tell you offhand.

Mr. Stone: You stated a number of times yesterday that the superheater lessened the labor of an engineer. I wish you would just explain to the Board in what way it lessens his labor.

Mr. Tollerton: By giving him a more efficient machine to get over the road with.

Mr. Stone: He handles just the same number of tons, doesn't he, as before, or more?

Mr. Tollerton: Yes, sir.

Mr. Stone: His productive efficiency is greater than before, is it not?

Mr. Tollerton: Very slight, but as a general thing he gets over the road in less time with a superheated engine. Therefore, as he is paid on miles, his pay is probably slightly increased.

Mr. Stone: But when he does make that expedited movement the company have received their revenue for the trip that much quicker, have they not?

Mr. Tollerton: That I don't know.

Mr. Stone: The company gets just the same rate for the passenger or for the ton when they get over a 100 mile division in four hours as when they take eight hours, do they not?

Mr. Tollerton: I am not familiar with rates.

Mr. Stone: How many power coal pushers have you on your road?

Mr. Tollerton: At the present time?

Mr. Stone: Yes.

Mr. Tollerton: None.

Mr. Stone: I believe you stated yesterday that you were sure that 70 per cent of the coal would come down against the gate with the hopper tank.

Mr. Tollerton: Yes.

Mr. Stone: On a day like yesterday, when coal gets wet with the rain, and then turns cold and freezes, does it come down just the same then?

Mr. Tollerton: My experience with fuel would indicate that it would freeze in cold weather.

Mr. Stone: But does your experience go further and say whether after it is frozen it will still come down against the gate, 70 per cent of it?

Mr. Tollerton: My experience goes this far, to say that a general rule could not be adopted that would control that feature on a northern line and at the same time control it on a southern line. That is a local proposition. If the railroad has those conditions, I think that the railroad will correct them.

Mr. Stone: You think so? What is the reason they have not been corrected long ago, then?

Mr. Tollerton: They have.

Mr. Stone: Then it does not mean anything?

Mr. Tollerton: I am speaking from my personal knowledge that they have been corrected, and as I testified to yesterday.

Mr. Stone: Coming back to this hopper tank, is it not a fact that you depend on a speed of a train or the rough riding qualities of either the tank or the engine to force the coal down?

Mr. Tollerton: It is not.

Mr. Stone: It just simply slides down by gravity, standing still?

Mr. Tollerton: Absolutely. Oh, standing still? Oh, I beg your pardon. It will take a large portion, but, of course, it takes the running of the engine in ordinary service to bring down the proportion quoted.

Mr. Stone: Wet slack will come down just the same as coarse lump coal that is dry?

Mr. Tollerton: It is slightly different in the sliding qualities; but you would not get very far with wet slack.

Mr. Stone: That is all some of them have to burn on some of these Western roads, with a little real estate mixed in.

Mr. Tollerton: I am merely talking about what I know about fuel.

Mr. Stone: Do you mean to convey the idea that you always have lump coal for those engines?

Mr. Tollerton: Yes—not always, but nearly so.

Mr. Stone: Is it not a fact that you take mine run, screenings and all just as it comes?

Mr. Tollerton: It is not a fact.

Mr. Stone: Is it not a fact that for certain engines on certain lines you always try to give them a little better grade of coal, selected coal?

Mr. Tollerton: No, sir.

Mr. Stone: They take it just as it happens on the chute, do they?

Mr. Tollerton: Yes, sir. I agree that at some times, for a particularly special train, there is a selected chute of coal selected for the locomotive; but that is the exception and not the rule.

Mr. Stone: Haven't you had quite a lot of protests filed with the different mechanical officials at local points in regard to the bad quality of the coal, and slack that is in the coal?

Mr. Tollerton: If those complaints were filed, I know nothing about them. None of them have reached me. I presume that the local people are taking care of the situation.

Mr. Stone: Then you don't know in regard to the operating features of your locomotives? It does not reach your office?

Mr. Tollerton: That detail?

Mr. Stone: Yes.

Mr. Tollerton: No.

Mr. Stone: Is it not a fact that numerous bulletins have been issued on the Rock Island Road, forbidding men to carry tramps on their engines to help get down coal for the firemen?

Mr. Tollerton: I never heard of such a bulletin.

Mr. Stone: You never heard of any orders being issued by local officials to that effect?

Mr. Tollerton: I never heard of any such orders.

Mr. Stone: Have you ever had any complaints about the firemen trying to get men to shovel coal down on the Rock Island?

Mr. Tollerton: I never heard of a complaint of that kind.

Mr. Stone: Do you get a report of local conditions out on the road, from your local operating or local mechanical men?

Mr. Tollerton: What do you refer to by "local conditions"?

Mr. Stone: Anything that tends to affect the economical or effective operation of the locomotives under you.

Mr. Tollerton: We have all reports pertaining to condition of locomotives, mileage, handling of them through the shops and elsewhere. Is that what you refer to?

Mr. Stone: You made an agreement with your firemen, did you not, that men would be placed at certain points to shovel down coal?

Mr. Tollerton: I believe such an agreement was in existence, but I did not make it.

Mr. Stone: You would not think it would be necessary, if 70 per cent comes down and a fireman on a tonnage train only uses 6 minutes in ten hours in shoveling it down?

Mr. Tollerton: To the best of my knowledge there were, some years ago, some coal passers put on the Rock Island, on the request of the locomotive firemen, after which we improved the tenders, by changing the slope of the coal space. Today, I

do not believe there is a coal passer on the Rock Island, nor do I believe that the locomotive firemen have ever renewed their request for these coal passers on the Rock Island. In making that improvement in the tender we were, at the same time, building coal chutes, bringing them nearer together. All of those factors eliminated the difficulty.

Mr. Stone: Do I understand from your statement about bringing the coal chutes closer together, that it was done for the convenience of the firemen, or was it done because you could not reach the coal chutes with your tonnage trains?

Mr. Tollerton: No; that is a general improvement in railroad conditions. It is not my wish to say that these things were done for any one particular reason or purpose. It is a general advancement in railroad conditions, but it brought about that result.

Mr. Stone: But if 70 per cent of coal slides down and there is 15 tons of coal on a modern tank, and he only burns 8 tons going over the road, why does he need to take coal?

Mr. Tollerton: I presume he would not take coal unless he had to.

Mr. Stone: You spoke yesterday about the Walschaert valve gear as one of the luxuries put on to please the engineer.

Mr. Tollerton: I don't think I used the term "luxury."

Mr. Stone: Well, refinements, then, I believe that was it—to save labor. Refinements generally mean luxuries, in many ways; but we will use the word "refinements." I believe you spoke yesterday about the Walschaert valve gears being put on as one of the refinements, to lessen the labors of the engineer. I believe you also stated that the Walschaert gear came from France. Were you not mistaken in regard to that?

Mr. Tollerton: That was my knowledge of it. It seems to me it was first put on in about 1844, in France. I am merely speaking from memory in regard to that. I think it is entirely immaterial as to where it came from.

Mr. Stone: It was first put on in 1844?

Mr. Tollerton: Yes. That is my recollection about it.

Mr. Stone: And the Rock Island discovered it in 1908?

Mr. Tollerton: But, understand, the Rock Island was one of the first to adopt it in this country. It did not come into

general use until along about 1904, after which the increase in its use was very rapid.

Mr. Stone: Is it not a fact that it was due to many other things besides the convenience of the engineer, that the Walschaert valve gear was adopted?

Mr. Tollerton: I do not recall at this time. When I made my statement yesterday, it was not with any desire to discredit the engineer, as regards the Walschaert valve gear. The Walschaert or other outside motions represent the gradual evolution in the locomotive design, from which, probably, both the locomotive engineers and the railroad company derive some benefit. It has, however, very much lightened the work of the locomotive engineer.

Mr. Stone: It has also, has it not, very much lightened the work of the mechanical operating officers?

Mr. Tollerton: No; I do not agree to that statement.

Mr. Stone: Is it not a fact that the Stevenson link motion became so heavy, with the modern locomotive, that it would simply break itself down from weight and from the high speeds of many trains?

Mr. Tollerton: I do not agree to that statement.

Mr. Stone: I believe you stated yesterday that the only time the link motion ever failed was when it was not properly lubricated. Is that correct?

Mr. Tollerton: That is one of the main causes of failures.

Mr. Stone: You do not recognize the fact that eccentrics can wear out of round, or that the straps can be so loose that they pound out, or anything of that kind?

Mr. Tollerton: That is a question of maintenance that the railroad companies take care of; they do not permit them to get into that condition.

Mr. Stone: Since when did they commence to do that?

Mr. Tollerton: Always.

Mr. Stone: Not in my day.

Is it not a fact that many an eccentric has become so hot that it gripped and broke the strap, because of a hot driving box?

Mr. Tollerton: The engineer was responsible for the hot driving box.

Mr. Stone: Surely.

Mr. Tollerton: If it was the primary cause of heating the eccentric.

Mr. Stone: They don't get hot in the roundhouse, do they?

Mr. Tollerton: Not standing still.

Mr. Stone: I think you stated yesterday that the screw reverse was put on to lighten the labors of the engineer.

Mr. Tollerton: It does lighten the labors of the engineer.

Mr. Stone: Then why do you not put it on your switch engines, where there is a constant reversing of the engine?

Mr. Tollerton: We did not consider it necessary.

Mr. Stone: Is it not a fact that you know that for a switch engine it is not practicable?

Mr. Tollerton: No, sir. A great many switch engines are so equipped.

Mr. Stone: How many switch engines are equipped with the screw reverse?

Mr. Tollerton: In the country?

Mr. Stone: Yes.

Mr. Tollerton: I have no figures.

Mr. Stone: Do you know of any?

Mr. Tollerton: I personally do not know of any. When I spoke about power reverse, I did not refer to the screw reverse as applied to a switching locomotive.

Mr. Stone: How many turns of the wheel does it take to reverse the Mikado type engines you have on the Rock Island, equipped with the screw reverse?

Mr. Tollerton: From corner to corner?

Mr. Stone: Yes.

Mr. Tollerton: I understand, ten.

Mr. Stone: You never had any experience with one of those trying to spot way cars at a platform, did you?

Mr. Tollerton: No.

Mr. Stone: You would not recommend them as being a good engine for that, would you?

Mr. Tollerton: Which?

Mr. Stone: The screw reverse.

Mr. Tollerton: As far as I know, they are spotting cars at doors every day, and appear to be doing it successfully?

Mr. Stone: And you think it lightens the labor of the engineer by having the screw reverse?

Mr. Tollerton: I know it does.

Mr. Stone: Is it not a fact that the reversing valve motion of these engines became so heavy that it was impossible for the engineer to reverse them alone?

Mr. Tollerton: No, sir.

Mr. Stone: You do not know of a single case where a fireman was called over to help the engineer get an engine over?

Mr. Tollerton: I presume there are such cases, when the lubricator is not properly working and he permits the valves to get dry.

Mr. Stone: A lubricator cannot work without oil, can it?

Mr. Tollerton: No, sir. And the engine crew are the proper persons to see that there is oil in it at all times.

Mr. Stone: I believe they are limited on quantity, are they not?

Mr. Tollerton: I don't know that they are.

Mr. Stone: In case an engine carries her water bad, or anything of that kind, or has gone a long time between washouts, the valves are liable to get dry from other causes, are they not?

Mr. Tollerton: Well, the engineer has a method of taking care of his locomotive, if it is foaming; that is, by blowing out part of the boiler of water. If he lets his water foam over into the valves and cut them, it would be his fault—improper handling.

Mr. Stone: Probably the bad condition of the water, would it not?

Mr. Tollerton: That does not signify. No water used in locomotives today is as bad as you represent.

Mr. Stone: Have you had any experience out in the alkali divisions of the West?

Mr. Tollerton: Some.

Mr. Stone: You never ran an engine on a few soap bubbles without any water at all, did you?

Mr. Tollerton: No.

Mr. Stone: If you had, I am sure you would not make such a statement.

You spoke yesterday of these men running at high speed, and that this power reversing gear was in order to get the lever down in the corner. Is it not a fact that if you undertook to put

one of these levers down in the corner, running at high speed, you would throw the engineer clear through the front window?

Mr. Tollerton: I do not think that is true, providing you have a piston valve locomotive, and that it is properly lubricated. I can understand with a sliding valve locomotive, improperly balanced, the valves permitted to run dry, due to lack of lubrication—that a circumstance such as you have just explained, might occur.

Mr. Stone: Are there any instructions from your road foremen of engineers, who are under you, to drop your reverse lever in the corner, immediately on shutting off, running at a high speed?

Mr. Tollerton: I believe there are some instructions of that kind. Just what the wording is I do not recall.

Mr. Stone: You don't know, then, that, if you did that, the engine would strip herself of everything inside of 100 yards?

Mr. Tollerton: Not with the cylinder release valves that are on the locomotives that those instructions cover.

Mr. Stone: On the others that do not have the cylinder release valves, he leaves the reverse lever right in the notch where he shut off, does he not, until he gets slowed down?

Mr. Tollerton: I do not know what the practice is in that respect.

Mr. Stone: I think we shall be able to demonstrate, Mr. Chairman, that there is no trouble getting the reverse lever down, but the trouble is in the other direction—that the great trouble is to get it back, once it gets down.

Mr. Tollerton: I think I stated yesterday that that was one of the duties that the locomotive engineer was relieved of with the screw reverse; it did not require the effort on his part to prevent the lever jumping into the corner.

Mr. Stone: Haven't you had numerous accidents, on these Western railroads, by reverse levers flying out of the engines on the quadrant, and injuring the men?

Mr. Tollerton: I have heard of none.

Mr. Stone: So you don't know whether any such thing happened or not?

Mr. Tollerton: No.

Mr. Stone: You spoke of the automatic bell ringer as a labor saving device for the fireman. Is it not a fact that the

automatic bell ringer was put on because the fireman was so busy shoveling coal that he didn't have time to ring the bell?

Mr. Tollerton: I never heard that reason given.

Mr. Stone: Were there not numerous damage suits where the case was won because it was proved that the bell was not ringing, and the fireman was at some other duty?

Mr. Tollerton: The legal department might be able to tell you that. I can not.

Mr. Stone: Is it not a fact that where you have the automatic bell ringer the instructions are to keep it ringing all the time?

Mr. Tollerton: I know what is the fact, whatever the instructions are; they will not shut it off, even stopping at the stations. Our greatest difficulty is to prevent the nuisance to the passengers, from the fact that they will not stop the bell after it is once started.

The Chairman: Why was that automatic bell-ringing device put on? Can we not get some information on a simple point like that?

Mr. Tollerton: I will say this, Mr. Chairman, that that is one of the refinements to the locomotive that has been gradually built up.

The Chairman: Why was it necessary to put on that refinement to the locomotive? Was it to relieve the fireman from pulling the bell cord, or was it for some other purpose?

Mr. Tollerton: I presume that that was one of the reasons. Mr. Stone has mentioned about the decrease in accidents. That is another that had not occurred to me. I accept that.

The Chairman: You are a practical railroad man. You have had a number of years practical experience. Just give us your views about it. We really want the facts.

Mr. Tollerton: My views are, Judge, that these refinements were the evolution of the improvement of the machine, and aid both the railroad company and the men; that the men are aided by having their work reduced, and that the railroad company is aided by reducing the number of accidents that may occur.

The Chairman: The railroad is compensated in that fewer accidents occur, and the fireman is benefited in that he does not have to pull the bell cord. That is about the size of it.

Mr. Tollerton: That is true.

Mr. Stone: Nearly all the state laws require the engine bell to be ringing 80 rods from all public highways and through streets, and so forth, and it was absolutely impossible for the fireman to comply with the state laws and keep his engine hot at the same time. I have not the Burlington book of rules here, but I think the Burlington book of rules requires that the bell ringer be started before the engine is moved, and kept constantly ringing until after the engine is stopped at the end of the trip. I am just speaking from memory, but I think that is the rule.

Mr. Byram: I think you are wrong about that, Mr. Stone.

The Chairman: I did not catch that, Mr. Stone.

Mr. Stone: I think the Burlington rules—I have not the book of rules here; I have it at my room, and Mr. Byram can correct me if I am wrong—require that the bell ringer shall be started before the engine starts to move, and kept constantly ringing while the engine is in motion.

Mr. Byran: That is better.

Mr. Stone: Until the end of the trip, I said before.

Mr. Byram: Yes. You said until the end of the trip.

Mr. Stone: I do not suppose he would ring it for thirty or forty minutes while the passengers were taking luncheon at a station, or anything like that. In fact, I do not know of any such stations on the Burlington road.

Mr. Byram: The reason I corrected you is that it makes quite a lot of difference—the way you stated it first and the way you stated it afterwards. I think the latter statement is correct.

Mr. Stone: Mr. Tollerton, I believe you also stated the pneumatic sander, commonly called the air sander, was another device that was one of the refinements of the modern locomotive?

Mr. Tollerton: Yes, sir.

Mr. Stone: When the railroads adopted the sand device, the engineer was required to operate it, was he not?

Mr. Tollerton: You mean the pneumatic sander?

Mr. Stone: Any kind of a sand device. The engineer was required to use sand when in his judgment it was necessary to prevent the wheels from slipping?

Mr. Tollerton: Yes; but the pneumatic sander does not

require the physical effort on the part of the locomotive engineer that the old type of sander did.

Mr. Stone: You stated the sand device was put on the locomotive to relieve the engineer of the labor of pulling open the sand lever, did you not?

Mr. Tollerton: I said that was one of the reasons.

Mr. Stone: Does the pneumatic sander economize on the amount of sand used on a trip?

Mr. Tollerton: Slightly.

Mr. Stone: It makes it possible to get a train over an entire division with the pneumatic sander, now, when you were not able to do it with the old hand lever?

Mr. Tollerton: That is because the pneumatic sander shuts off automatically, and sometimes the locomotive engineer forgot to shove his sand lever back.

Mr. Stone: Is it not a fact that the men who sell the sand device claim that more tonnage can be hauled with the engine on account of the small spray of sand placed on the rail?

Mr. Tollerton: That is the claim in the advertisement.

Mr. Stone: You do not believe it is true in theory, then?

Mr. Tollerton: No.

Mr. Stone: You don't know that a number of roads in the Western territory arrange the water pipes back of the drivers, and ahead of the rest of the train, to wash the sand off the rail, after it had been used to prevent the slipping of the locomotive, so they could haul more tonnage?

Mr. Tollerton: I know nothing about that.

Mr. Stone: Never heard of it?

Mr. Tollerton: No, sir.

Mr. Stone: Do you know any roads now that are using water pipes attached to the tank, to wash off the rails, in order to prevent the car wheels from passing over the sand?

Mr. Tollerton: No, sir.

Mr. Stone: You don't know that it ever was used?

Mr. Tollerton: No, sir.

Mr. Stone: What would happen to an engineer on your road, with your general opinion of engineers, if he did leave the hand sander open and emptied the sand box, before he got back?

Mr. Tollerton: You mean as to discipline?

Mr. Stone: Yes.

Mr. Tollerton: Why, I do not think there would be any discipline attached to it. We do not discipline them for more serious things than you have just described.

Mr. Stone: Just what, for example, do you not discipline them for?

Mr. Tollerton: Well, hot driving boxes and other accidents to machinery, due to the fact that they have let a nut become loose or lost a cotter pin out, or something of that kind.

Mr. Stone: Did they lose it out, or was it a mechanical defect?

Mr. Tollerton: It was in there when the engine left the terminal.

Mr. Stone: And if properly put in and properly fitted, it should have been in there when the engine arrived at the other terminal, should it not?

Mr. Tollerton: That does not always follow.

Mr. Stone: And, of course, an engineer running at a speed of 50, 60 or 70 miles, should have a pocket full of cotter pins to put in the reciprocating motion, wherever it jars loose?

Mr. Tollerton: Of course, all the failures do not occur on engines running at that speed. We have failures occur on engines running at the slowest speed.

Mr. Stone: Speaking of cotter pins now, or hot driving boxes?

Mr. Tollerton: I am speaking of engine failures.

Mr. Stone: On your driving boxes, you have the grease cellars?

Mr. Tollerton: Some of the engines.

Mr. Stone: Would you hold an engineer responsible for a hot driving box, with a grease cellar?

Mr. Tollerton: We never have.

Mr. Stone: You think it is his fault, though?

Mr. Tollerton: We never have.

Mr. Stone: When you spoke of overlooking offenses of hot driving boxes, did you refer to oil or grease cellars?

Mr. Tollerton: I spoke of grease cellars at that time, which might very easily occur through improper setting up of the wedge.

Mr. Stone: That was proven by what, the fact that the box got hot and the wedge stuck?

Mr. Tollerton: By the gripping of the wedge to the driving box.

Mr. Stone: I think you said a while ago that if a driving box got hot and broke an eccentric, that was the engineer's fault?

Mr. Tollerton: That was your question, not mine.

Mr. Stone: You said if the driving box got hot, it was the fault of the engineer.

Mr. Tollerton: I said that was the primary cause, no doubt.

Mr. Stone: Coming back to that Walschaert gear, for just a minute, is it not a fact that it is the roundhouse man's friend, easy to get at and easy to make repairs, instead of being in a pit and working up over his head?

Mr. Tollerton: I have never heard that argument advanced.

Mr. Stone: It is much easier to make repairs on it, is it not?

Mr. Tollerton: Because it gets better lubrication.

Mr. Stone: Lubrication hasn't anything to do with making repairs, has it?

Mr. Tollerton: Indeed it has.

Mr. Stone: When a certain thing is reported?

Mr. Tollerton: Indeed it has. With proper lubrication, there is less occasion to make repairs.

Mr. Stone: Then it is the lubrication that counts and not the saving of the engineer. If you were to put automatic oil feeders on everything, you would not need an engineer?

Mr. Tollerton: I do not wish you to understand that I don't consider that the locomotive engineer and the locomotive fireman is not busily engaged, every minute of the time that he is on the road.

Mr. Stone: I thought you testified yesterday that the fireman was resting at his ease 69 per cent of the time?

Mr. Tollerton: That was the time not engaged in labor; but I did not make the statement that he was not. He is there and he is working. He is working all the time, stretched over this period of time. I do not want to be placed in the position that I don't give credit to the locomotive engineer and fireman for what they do, because I do.

Mr. Stone: You said yesterday, Mr. Tollerton, that the engineer had been relieved of all labors, except the opening and shutting of the throttle, and you had had to put on a certain throttle that cost $100, in order to enable him to do that.

Mr. Tollerton: I do not think those were my words. I did say, however, that the tendency was to relieve him of all work, except to open and close the throttle, and, generally speaking, that is correct.

Mr. Stone: Then, are we to understand that that is all you pay an engineer for?

Mr. Tollerton: We pay an engineer for being an engineer.

Mr. Stone: Then he is not paid for just opening and closing the throttle?

Mr. Tollerton: That is one of his duties that I hope we will not have to relieve him of.

Mr. Stone: Well, if that is what you are paying him for, you are paying him entirely too much.

Mr. Tollerton: I have never made a statement that the locomotive engineer was getting too much. I feel, however, that locomotive improvements have been brought about, since 1910; that his work has not increased, as far as his physical labor is concerned, since that time.

Mr. Stone: You distinguish, then, between mere physical labor and responsibility?

Mr. Tollerton: Well, a locomotive engineer is responsible, all the time he is on duty. I do not wish to detract in any way from a locomotive engineer's responsibility.

Mr. Stone: Why did you adopt grease cellars on your road for your modern power?

Mr. Tollerton: Well, as I said before, it is the gradual evolution of the improvement in locomotive construction, but in that evolution the locomotive engineer was relieved from work.

Mr. Stone: It also enabled you to run your modern heavy power, with this increased weight per axle, and make a successful trip over the road, did it not?

Mr. Tollerton: No, sir.

Mr. Stone: Have not the grease cellars reduced the percentage of engine failures to a large amount?

Mr. Tollerton: It has reduced the percentage of hot boxes, because it gets more uniform lubrication, but when you make the

statement that it has enabled us to carry greater axle load, that is not true. Axle proportions have been increased, so that the weight carried per area per square inch has been the governing factor.

Mr. Stone: But you have got up to about the limit of the axle load, have you not?

Mr. Tollerton: No, I do not think so. That depends entirely on the railroad company's ability to spend money for bridges, track, right of way.

Mr. Stone: Then we are going to have still bigger engines, is that correct?

Mr. Tollerton: That I cannot say.

Mr. Stone: Well, as a designer of locomotives, you should have an opinion on the subject, at least.

Mr. Tollerton: No, know nothing about that.

Mr. Stone: Do you think we have reached the limit of the modern locomotive?

Mr. Tollerton: I am merely speaking of facts as they now exist.

Mr. Stone: But a man who is a designer for power, for a railway system of sixteen or seventeen thousand miles, must be looking to the future, or must be looking ahead.

Mr. Tollerton: I will tell you, as far as our railroad is concerned, the big engines, so-called, on our railroad, since we have had them, we haven't got 75 per cent of the tractive effort from the locomotives. When those engines came onto the railroad, they brought with them a new high rate of pay, for both the locomotive engineer and fireman, and since they have been on our railroad, we have not been able to average over 75 per cent tonnage with the engines.

Mr. Stone: Whose fault is that?

Mr. Tollerton: That is the fault of the Western conditions. On Western railroads, traffic is generally so thin, on an average for the twelve months of the year, and during the three or four heavy months, it is either in one direction or the other, that the large locomotives, on many of these Western railroads, are not handling their tonnage.

Mr. Stone: Then that would be shown in the earning sheet presented here by Mr. Keefe, wouldn't it?

Mr. Tollerton: I don't know, Mr. Stone, just what Mr. Keefe's sheet was.

Mr. Stone: You heard the statements of the different engineers and firemen who testified here on the witness stand, did you not?

Mr. Tollerton: I heard some of them, yes, sir.

Mr. Stone: And you have read the rest?

Mr. Tollerton: No, I have not read all of them.

Mr. Stone: You heard a number of them testify as to the coal consumed, and the fact that it took both of them to keep the coal down and keep it into the engine?

Mr. Tollerton: I do not recall just what you refer to.

Mr. Stone: About engineers and firemen both testifying that the engineer was busy shoveling coal down and the fireman was busy shoveling it into the firebox?

Mr. Tollerton: I heard some testimony of that character.

Mr. Stone: But from your 2,000 test trips, and the time that you have shown here, you do not reconcile your statement with theirs at all, do you?

Mr. Tollerton: In taking the information furnished by the railroads I merely tabulated it.

Mr. Stone: And your statement of shoveling down coal six minutes to the trip in ten hours, is simply taken from the tabulation that you have made, is that correct?

Mr. Tollerton: Something like 2,000 observations.

Mr. Stone: How many trains were run during that same period that you were making these observations?

Mr. Tollerton: You mean in the locality that the observations were made?

Mr. Stone: On those same roads.

Mr. Tollerton: That I cannot tell you. I have no information bearing on that subject.

Mr. Stone: You don't know what percentage the trips you show were to the whole number of trips?

Mr. Tollerton: No, I have no information on that.

Mr. Stone: You spoke yesterday about setting up wedges from the outside, and said an engineer could set up the wedges on any modern locomotive from the outside. Do you still hold to that view?

Mr. Tollerton: I believe I qualified it in regard to the Mallets, didn't I?

Mr. Stone: Do you still think it is true in the 2500 class of the Rock Island?

Mr. Tollerton: We do not ask the engineers to set up the wedges on our 2500's.

Mr. Stone: I know you don't because it is in your agreement, but you said an engineer could set it up on any modern locomotive.

Mr. Tollerton: We set them up now for the locomotive engineers, with our shop forces.

Mr. Stone: Well, when a shop force goes to set up a page, do they set them up from the outside or does the man go down in the pit?

Mr. Tollerton: He could set them from the outside, but it is more convenient to do them from a pit.

Mr. Stone: Well, if he could do it quicker from the outside, why don't you instruct your shop forces to have it done that way?

Mr. Tollerton: I did not make any statement that he could do it quicker from the outside.

Mr. Stone: How often do you set up wedges on your power engines, on these heavy powers?

Mr. Tollerton: Set them up just as often as they are reported by the locomotive engineers.

Mr. Stone: And the engines are run in a pool, are they?

Mr. Tollerton: To the best of my knowledge, yes, sir.

Mr. Stone: They are not regularly assigned men on regular engines?

Mr. Tollerton: Not on the Mikados, I don't think.

Mr. Stone: You spoke of packing the different valves or cocks in the cab, and driving boxes and grease cellars, etc. What brought that about? Why did the railroads voluntarily relieve the engineers of that work?

Mr. Tollerton: That I could not tell you. It is in the schedule. I did not make the schedule. They have been relieved of all of that work, however, on the Rock Island.

Mr. Stone: Did the shop organization have anything to do with it?

Mr. Tollerton: No.

Mr. Stone: Claiming it as their work?

Mr. Tollerton: No.

Mr. Stone: Are we to understand from your testimony here, as a mechanical expert, that the modern locomotive has more room in the cab than the old locomotive had?

Mr. Tollerton: I do not believe I testified on that subject.

Mr. Stone: You said these new engines you had ordered, in reply to someone's question, that in them the cab arrangements had been made for the convenience of the employes?

Mr. Tollerton: Oh, that is entirely so.

Mr. Stone: In regard to space in the cab and everything else. Was that taken into consideration?

Mr. Tollerton: Of course, you are limited in space by your overall width.

Mr. Stone: And the larger the boiler, the less space there is, is there not?

Mr. Tollerton: That would naturally follow when you are limited in the overall width.

Mr. Stone: What is the space between the side of your boiler sheet and the side of the cab in your new locomotives?

Mr. Tollerton: Oh, I don't know.

Mr. Stone: You designed her, did you not?

Mr. Tollerton: Yes, but I do not recall all the dimensions on it now.

Mr. Stone: Well, what do you think it is?

Mr. Tollerton: Possibly 15 or 18 inches. That is purely a guess, however, on my part.

Mr. Stone: And in that narrow space, a man has to both ride and work as an engineer, doesn't he?

Mr. Tollerton: Oh, no, he has more space you know. You spoke of between the boiler head and the cab. He has his seat box beyond.

Mr. Stone: Between the side sheet, I said, and the cab.

Mr. Tollerton: Yes.

Mr. Stone: You have a type of engine that come clear back through, have you not, some of your engines?

Mr. Tollerton: Well, they are very small; old type of engines.

Mr. Stone: You spoke of one railroad in the West that was

properly equipped to weigh locomotives. Will you please state what railroad that is?

Mr. Tollerton: I believe it is the Milwaukee, at the Milwaukee shops. That is the only line that I know of.

Mr. Stone: You also stated that you had not been successful and did not believe anyone else could be, in coming closer than 6,000 pounds to the actual weight of the engine?

Mr. Tollerton: I was merely giving our experience. You might get off 10,000 pounds; you might get down to 2,000 pounds; but every time you weighed it you would get a different weight.

Mr. Stone: Then these different roads that have changed the weight on their engines, by weighing first one end and then another and making a computation, guessed at it, did they not?

Mr. Tollerton: It depends on the type of locomotive.

Mr. Stone: On your modern Consolidation or Mikado type of locomotive?

Mr. Tollerton: They had to make the calculation, if the weight was carried by an equalizer. They could not get it accurately on the scales.

Mr. Stone: Then there is only one weight that should govern, is there not, and that is the builder's weight, where the locomotive was built?

Mr. Tollerton: By the application of a superheater and a brick arch you are changing these weights.

Mr. Stone: And when you do like the Great Northern did, increase the cylinder five inches, and increase the tractive effort 42 per cent, how much do you increase the weight on drivers?

Mr. Tollerton: Of course, I don't know anything about the descriptions you have made, but I cannot imagine that change being made on a locomotive that had a factor of adhesion sufficient to permit a change of that character to be made.

Mr. Stone: I don't think there is any question about the locomotives being in service, Mr. Tollerton, and Mr. Emerson explains it by the fact that they work the engine a longer stroke, and they get a more equal pressure on the crank pin, and they don't have so much trouble in slipping the engine as they did before. Anyway, she is handling her tonnage, that is sure.

In filling lubricators, when, in your opinion, should a lubri-

cator be filled? On the arrival of an engine at the roundhouse, or before going out?

Mr. Tollerton: I believe on our line they fill the lubricator going out, and that, in my judgment, is the proper time to fill it.

Mr. Stone: Is it not a fact that in filling these lubricators when an engine is hot that you have to invariably shut off the steam before you undertake to fill them?

Mr. Tollerton: That is why an experienced man should do the work.

Mr. Stone: Is it not a fact that many of these valves are leaky, and you have got to wait till the lubricator cools down, and then shut it off, or else get scalded with hot oil in filling them?

Mr. Tollerton: I do not accept that as being the fact.

Mr. Stone: You have never had any report of it being impossible to fill a lubricator on steam?

Mr. Tollerton: I have never seen one.

Mr. Stone: And your idea is that the crew, after they are called, should fill their own lubricators?

Mr. Tollerton: My idea is that the crew should fill the lubricators. Locally they might arrange it either on the incoming trip or the outgoing.

Mr. Stone: Well, when an engineer is pooled he wouldn't want to draw oil and fill the lubricators coming in, would he, for an engine he might not run again in a month?

Mr. Tollerton: That is a local condition, and should be arranged locally.

Mr. Stone: You are strongly in favor of all these questions being adjusted locally, are you not?

Mr. Tollerton: Many of them.

Mr. Stone: Well, is it not a fact that the failure to adjust them locally is what has brought many of these questions here?

Mr. Tollerton: I don't think so.

Mr. Stone: Then, why were they not adjusted locally?

Mr. Tollerton: Negotiations between men and railroads, to the best of my knowledge, have always been carried out successfully and satisfactorily to both parties.

Mr. Stone: Allowing the official to be both judge and jury, and the men accepted what they could get in a compromise, and

probably rather than strike they accepted, and that is the way negotiations have been carried on all these years, have they not?

Mr. Tollerton: I am not prepared to answer that. I can only speak from my own knowledge of negotiations.

Mr. Stone: These weights you show on your exhibit, how do you arrive at them, weights of locomotives?

Mr. Tollerton: Will you refer to the page, Mr. Stone?

Mr. Stone: In your big exhibit there you give the weights of these different engines. How did you arrive at that weight? On your 2,000 trip tests you gave the different classes of engines and so forth, the weight of engines, and superheated and saturated steam.

Mr. Tollerton: Oh, you mean on those test trips?

Mr. Stone: Yes, how did you arrive at the weights?

Mr. Tollerton: They were reported direct from the railroads, and the weights given by the railroads we used.

Mr. Stone: Do you know whether Mr. Keefe arrived at the weights for his exhibit in the same way, reported by the railroads?

Mr. Tollerton: I know nothing about it.

Mr. Stone: You did not furnish that part of the information?

Mr. Tollerton: No, sir.

Mr. Stone: You still believe, however, that the proper way to regulate the wages of engineers and firemen is on a cylinder basis?

Mr. Tollerton: Yes, considering the rules surrounding compensation that go with each railroad, I consider that as being just as accurate and reliable as weight on drivers.

Mr. Stone: Then how would that be applied on these engines on the Great Northern, where they increased the cylinders? That would have put them on in the other class, of a higher rate, wouldn't it?

Mr. Tollerton: I know nothing about that. Whatever the Great Northern schedule is would influence.

Mr. Stone: Well, wouldn't it naturally follow that an engine increased from 19 to 20 inches, take this F-8 class that were 20 x 32, and were increased to 26 x 32, that would put them in a high class with the firemen, wouldn't it?

Mr. Tollerton: If their schedule called for that division, I presume it would.

Mr. Stone: If they had a schedule on a cylinder basis it would undoubtedly change the rate, wouldn't it?

Mr. Tollerton: If the rate depended on a cylinder basis, no doubt it would.

Mr. Stone: And that is what you want every time you superheat an engine and give her two inches larger cylinder? You want to increase the rate, is that it?

Mr. Tollerton: I do not accept that statement as to being able to increase the cylinder two inches in diameter every time we superheat an engine.

Mr. Stone: But Mr. Emerson has gone further than that. He has increased 16 inches in diameter.

Mr. Tollerton: I know nothing about that feature of it. There are surrounding factors that are not brought out in your statement.

Mr. Stone: Here is the blue print before and after, if there is any doubt about it. I have no doubt you have it in your files as well. Do you know of any complaint on those roads where they now pay on the weight on driver basis?

Mr. Tollerton: No.

Mr. Stone: Have you heard any complaints from any of the roads in the Eastern territory where they now pay their firemen on the weight on driver basis?

Mr. Tollerton: No. Nor have I heard any complaint where we pay on cylinder basis.

Mr. Stone: But you do not agree with Mr. Nixon, who represented the Western Managers Association in 1910, with Mr. Worthington, who represented the Managers' Association in the Eastern territory, in regard to the proper way to compute the wages of engineers and firemen? They both say weight on drivers, and you disagree with that?

Mr. Tollerton: Of course; I gave my testimony yesterday on that. I have no reason for changing it today.

Mr. Stone: You speak of the rules in the present schedules that are retained by the saving cause as the principal objection to changing from size of cylinders to weight on drivers. Just what rules do you have in mind, Mr. Tollerton?

Mr. Tollerton: I have no particular rule in mind.

Mr. Stone: Suppose we were to accept your idea of the cylinder basis, just how should we go to work to prevent companies from bushing cylinders as soon as the award was handed down, as they did as soon as the Firemen's Award was handed down in 1910?

Mr. Tollerton: I don't know.

Mr. Tollerton: I do not know.

Mr. Stone: You do admit, however, that size of cylinders does change from three-quarters to an inch, in re-boring, do you not?

Mr. Tollerton: I said one-half inch.

Mr. Stone: Have you ever known them to be bored larger than that?

Mr. Tollerton: Yes.

Mr. Stone: It is not uncommon to bore them three-quarters to an inch larger, is it?

Mr. Tollerton: It is very uncommon.

Mr. Stone: Then, after you bore them out as thin as possible, what do you do again—put a bushing in, or put on new cylinders?

Mr. Tollerton: Bring them back to the original size with the bushing, providing the cylinder walls are sufficient to hold it.

Mr. Stone: I think you stated yesterday that the American Locomotive Company circular—I think you said 1017—I did not get the number at the time.

Mr. Tollerton: I think that is the number.

Mr. Stone: Shows the superheater, with 23 per cent less boiler capacity would develop the same tractive power, or show the same efficiency as a saturated steam boiler, 23 per cent more. Is that correct? I do not know as I got the question right. I jotted it down in a hurry, as you were talking.

Mr. Tollerton: I would much prefer going to the testimony.

Mr. Stone: Well, it was one of the late things in the afternoon. Well, we will pass that question for the present. I think you said yesterday, in reply to a question of the chairman, that a piston speed of 600 feet a minute would be about ten miles an hour.

Mr. Tollerton: Yes, I think that was my testimony.

Mr. Stone: It would depend altogether on the size of the

driver, what the speed would be, and it should be modified to that extent, should it not?

Mr. Tollerton: Naturally, yes.

Mr. Stone: A piston speed of 600 feet a minute, with a driving wheel 50 inches in diameter, and a piston speed with a driving wheel diameter of 82 or 84 inches, would be a different proposition entirely?

Mr. Tollerton: Oh, yes.

Mr. Stone: But is it not a fact that the superheater engine is the engine, because of the fact that you can take more out of them, as they say in railroad parlance, on the road? They stand up to a heavier strain.

Mr. Tollerton: They are decidedly a better engine, at speed.

Mr. Stone: And that is what makes them so, is it not?

Mr. Tollerton: More efficient.

Mr. Stone: As the railroad men say, they will stand "greater beating" than the saturated steam engine.

Mr. Tollerton: Yes, they get over the road lots better.

Mr. Stone: So the sustained tractive effort is much better than the saturated steam engine?

Mr. Tollerton: The tractive effort does not fall off quite as rapidly with a superheated engine, at speed.

Mr. Stone: Then they do maintain a higher tractive effort, do they not, at speed?

Mr. Tollerton: Slightly higher, yes.

Mr. Stone: Is it not quite a lot higher?

Mr. Tollerton: No; I would say—well, I have not the figures now, but it is not quite a lot higher.

Mr. Stone: In regard to the more generous proportions of the fire box, you said yesterday the fire boxes were of more general proportions, and they did not burn near so much coal per square foot. If I got your figures correctly, you said burning about 120 pounds of coal, per square foot, on this large grate area, while with the narrow box he used to burn 220 pounds of coal per square foot.

Mr. Tollerton: I think that is the figure I used.

Mr. Stone: What is the ratio of grate area of the modern locomotive, as compared with the old one that the firemen have to keep covered?

Mr. Tollerton: It has a greater grate area.

Mr. Stone: Much longer box?

Mr. Tollerton: Yes.

Mr. Stone: And a much wider box?

Mr. Tollerton: Yes; but you must understand that the evaporating heating surface of the fire box has been so much improved, that you get the energy from the coal that you throw into the box, in larger proportions than you did with the old design of locomotive.

Mr. Stone: What is the length of the fire box in your Mikado type?

Mr. Tollerton: Let me see—ten feet, I think.

Mr. Stone: What is the width?

Mr. Tollerton: 72 inches, it seems to me. That fire box, 108x84, Mr. Stone.

Mr. Stone: 9x7.

Mr. Tollerton: 108x84.

Mr. Stone: 9 feet long, 7 feet wide. That 120 pounds per square foot, is the pounds of coal you burn in what length of time?

Mr. Tollerton: One hour.

Mr. Stone: You said that that would make about 6,700 pounds of coal, on that basis, an hour? If I figured correctly, yesterday on your exhibit, your Table No. 1 of Exhibit 35, you show where a man burned 8.67 tons of coal on these 1,556 runs in one hour and 42 minutes. You divided it differently, of course.

Mr. Tollerton: I don't think that shows anything of that kind.

Mr. Stone: It does not show that? Then I do not understand your figures. You say: "Average time supplying coal to fire box, 1 hour and 42 minutes."

Mr. Tollerton: Yes.

Mr. Stone: And average tons of coal 8.67. He must have shoveled that number of tons of coal in that many minutes, must he not?

Mr. Tollerton: Stretched over the 8 hours and 47 minutes.

Mr. Stone: He did not shovel any coal when he was not working?

Mr. Tollerton: He stretched over that period.

Mr. Stone: Then the impression you mean to convey here,

or the inference we would draw, rather—I don't know what impression you meant to convey—is that the fireman shoveled 8.67 tons of coal in 1 hour and 42 minutes. Is that correct?

Mr. Tollerton: That is not what the table states.

Mr. Stone: Did he shovel any coal out of the gangway, or any place else? He was supplying coal to the fire box 1 hour and 42 minutes.

Mr. Tollerton: He was on duty 8 hours and 47 minutes, and during that period of time he shoveled 8.67 tons of coal.

Mr. Stone: But he was only shoveling coal 1 hour and 42 minutes of the time?

Mr. Tollerton: Of the time he was working, yes.

Mr. Stone: Therefore, he must have shoveled that amount of coal in that time, did he not?

Mr. Tollerton: It was stretched over the entire trip.

Mr. Stone: Then the figures are not right, are they?

Mr. Tollerton: They are entirely correct, according to the way they are published here.

Mr. Stone: Are we to understand, now, that he did not shovel this 8.67 tons in an hour and 47 minutes?

Mr. Tollerton: Stretched over the period of 8 hours and 47 minutes.

Mr. Stone: But you say the time supplying coal to fire box was 1 hour and 42 minutes?

Mr. Tollerton: That is true.

Mr. Stone: Then that is all the time he was shoveling coal, is it not?

Mr. Tollerton: That is the time he was working.

Mr. Stone: Then he must have shoveled that amount of coal in that time?

Mr. Tollerton: No, sir. That does not follow. He shoveled that amount of coal in 8 hours and 47 minutes.

Mr. Burgess: Let me ask a question there, so that I will not get confused, Mr. Tollerton: On Exhibit 35, Table 1, line No. 4, I read, "Average time performing no physical labor, 6 hours, 5 minutes."

In answer to a question by the Chairman yesterday, and in answer to a question by Mr. Byram, you stated the same thing, namely, that that represented the time that he was sitting on the seat box or standing at ease in the gangway.

Mr. Tollerton: Covered by a spread of 8 hours, 47 minutes.

Mr. Burgess: If he was sitting on the seat box or standing at ease in the gangway, he would not be shoveling coal, would he?

Mr. Tollerton: No, sir.

Mr. Burgess: Therefore, taking the language as it reads, coupled with your testimony, in answer to a question by Mr. Byram and the Chairman, it is a fact that he would be standing at ease, or sitting on the seat box 6 hours and 5 minutes out of a total of 8 hours and 47 minutes?

Mr. Tollerton: So the railroad companies reported that made the tests.

Mr. Burgess: Therefore, that would, if this report reads properly, convey the impressions to some minds at least, that the language reading "Average time supplying coal to fire box" was 1 hour and 42 minutes, less the time that he consumed leaving the seat box and returning to the seat box?

Mr. Tollerton: That was all taken into consideration.

Mr. Burgess: And it is a fact, then, that he did shovel this coal in 1 hour and 42 minutes?

Mr. Tollerton: Stretched over the total period of 8 hours and 47 minutes.

Mr. Burgess: In view of your testimony yesterday, together with the reading of this exhibit, what do you mean by saying "stretched over the entire 8 hours and 47 minutes"?

Mr. Tollerton: He shoveled 8.67 tons of coal on an average, a trip, the trip occupying, on an average, 8 hours and 47 minutes. One divided by the other, gives him the average rate per hour of 1.975.

Mr. Burgess: What does the language "Average time supplying coal to the firebox" with the figures directly opposite it, mean?

Mr. Tollerton: It means the time that he was engaged from the time he got off from the seat box, picking up the scoop, putting the coal into the fire box, laying down the scoop, and either standing at ease or getting onto the seat box.

Mr. Burgess: And that total time that he was doing that was one hour and 42 minutes?

Mr. Tollerton: According to the reports furnished.

Mr. Burgess: And again, according to the reports, and further substantiated by your testimony, the fireman has, in

that spread of time, 8 hours and 47 minutes, been 6 hours and 5 minutes either sitting on the seat box, or standing in the gangway at ease?

Mr. Tollerton: So reported by the railroads.

The Chairman: We will take a recess at this point.

(Whereupon, at 12:30 o'clock p. m. a recess was taken until 2:30 o'clock p. m.)

After Recess.

W. J. TOLLERTON was recalled for further examination and, having been previously sworn, testified as follows:

Mr. Sheean: If the Court please, there was handed to me this morning, and I intended before adjournment to formally make it part of the record, a letter dated February 3, 1915, addressed to Mr. Trenholm, and signed by Mr. Byram, as follows:

"Dear Sir:

"I beg to advise that we now have on the twelfth floor of our general Office Building, at the corner of Jackson Boulevard and Clinton Street, Chicago, the train sheets, payrolls, engineers' and firemen's time slips, time rolls and time cards, for the Chicago, Burlington & Quincy Railroad for the month of October, 1913, and they are available for examination in accordance with the order of the Board of Arbitration in the engineers' and firemen's wage movement.

"As we have some vacant space on this floor that can be made available for the purpose of checking these documents, we offer the free use of such space for as long a time as may be desired.

"As the papers are a valuable part of the records of our company and which we are required by the Interstate Commerce Commission to carefully preserve, we would prefer to have the examination made as suggested above, where the papers will be in the custody of representatives of our Company, but of course, they will be subject to the freest use and examination by the authorized representatives of the Organizations.

"Yours truly,

"H. E. Byram, Vice-President."

Mr. Trenholm advises that the records of the Omaha are also here, and are at the offices of the Chicago & North Western.

Mr. Trenholm: Yes, and a large portion of the eighth floor there is available for use, and we feel the same as Mr. Byram does, that if satisfactory to the men we will furnish them good office room, where the records can be taken care of by the custodian of the railroad, and put in the vaults at night. They can have the freest use for checking them they want.

Mr. Stone: I will say, Mr. Chairman, that that arrangement will be entirely satisfactory to us, and I would much prefer that their custodian have charge of the papers and be responsible for them, than undertake to take them out to some other office building and be responsible for them all the time we are checking them ourselves. I understand we can get the necessary tables and chairs there, and light, to do the work?

Mr. Byram: Yes.

Mr. Sheean: I think we shall be able, then, following what there are here now (the Burlington and Omaha are already here) and probably, as the others come in, we shall be able to get them delivered at the same places where the forces are organized, so that the work can continue at the same place.

Mr. Byram: I have arranged, Mr. Chairman, to have the Great Northern and the Colorado & Southern papers sent to the same place, and the same privileges will be offered for the examination of those records as our own, in the general office building of the Burlintgon.

The Chairman: That is a splendid arrangement. I am glad to see you gentlemen working together harmoniously.

Mr. Stone: We occasionally agree. Mr. Chairman, we never have any trouble in agreeing on anything when there is not any money involved.

Mr. Byram: Is that quite so, Mr. Stone?

Mr. Stone: I beg pardon.

Mr. Byram: I say, is that quite so? I remember one occasion when we didn't agree very well.

Mr. Stone: Well, we arbitrated and they agreed for us.

The Chairman: Well, gentlemen, we must not bring out the "blue hank."

Mr. Stone: Mr. Tollerton, I am still particularly interested

in that Walschaert valve gear. On page 4279 of your testimony yesterday, Mr. Burgess asked you the following question:

"Are you willing, as superintendent of motive power, to admit or acknowledge that the Walschaert valve motion is put on locomotives purely as a labor-saving device for the engineers and the firemen?

"Mr. Tollerton: Entirely. It saves that labor."

Mr. Burgess asked you again:

"And it is installed for no other purpose than in consideration of the engineers and firemen?"

Then you modified it slightly, by saying:

"Oh, yes; it is installed to minimize the failures of which the Chairman just spoke a few moments ago."

Do you mean to say that there is no saving or no economy in the Walschaert gear over the old Stevenson link?

Mr. Tollerton: What saving do you refer to, Mr. Stone?

Mr. Stone: More efficiency out of the locomotive, with the same amount of steam, same boiler pressure.

Mr. Tollerton: None whatever. You are referring now to the operation of the valve, whether with the Stevenson link or Walschaert valve gear?

Mr. Stone: Yes.

Mr. Tollerton: I would say no.

Mr. Stone: And in what material way does the motion of the two valves differ?

Mr. Tollerton: As in its functions?

Mr. Stone: Yes.

Mr. Tollerton: I would say practically no difference.

Mr. Stone: Is not the lead constant on a Walschaert gear and increasing on the Stevenson gear, with the shorter cut-off?

Mr. Tollerton: Yes; but lead does not bring about any economy. Lead is a detriment in valve motion.

Mr. Stone: That is the reason why working a cut-off with a Stevenson is a detriment to the engine, that you overcome by the Walschaert gear, do you not?

Mr. Tollerton: With increased lead, your back pressure increases, which is a detriment to the engine operation.

Mr. Stone: I believe you quoted among these devices that are put on to relieve an engineer and fireman of labor—refinements—only estimated it at $1,000 per engine, is that correct?

Mr. Tollerton: That is correct.

Mr. Stone: Why was it necessary to put on a balance throttle, at a cost of $100, on the locomotive of modern type?

Mr. Tollerton: It lightens the pull of the engineer on the throttle lever.

Mr. Stone: Was that the sole motive?

Mr. Tollerton: That was one of the motives. It does not increase the efficiency of the locomotive at all.

Mr. Stone: But it does help the smooth starting of the train, does it not?

Mr. Tollerton: It would have that advantage. It would have that general bearing.

Mr. Stone: And as a result of being able to graduate your admission of steam into the cylinders, it was much easier on draft rigging, was it not? You did not have so many drawbars pull out?

Mr. Tollerton: Before the introduction of the throttle they handled just as heavy a train as they do now.

Mr. Stone: Did you have a committee of engineers wait on you and request that you adopt the balance throttle?

Mr. Tollerton: Not to the best of my recollection.

Mr. Stone: It was adopted at a meeting of the Mechanical Engineers' Association, was it not, or approved of, rather?

Mr. Tollerton: I could not tell you that. If it was, it had no influence on my decision.

Mr. Stone: Well, I can readily understand that, but how did you come to adopt it?

Mr. Tollerton: Because, in the general improvement in locomotive design, that was one of the improvements. It aided the locomotive engineer in having him perform his work easier.

Mr. Stone: It also enabled the railroad company to have their engines perform the work more successfully, did it not?

Mr. Tollerton: I would say that any devices that aid the engineer in performing his work, also aid the railroad company.

Mr. Stone: Then, it is a mutual arrangement—this money that you have spent for these refinements?

Mr. Tollerton: I believe all our locomotive engineers consider it so.

Mr. Stone: I thought this was just for the benefit of the men, and the company got no revenue from it at all.

Mr. Tollerton: They do not get any revenue from it; that is, that can be traceable in dollars and cents.

The Chairman: Would it have been adopted, had you only had in view the welfare of the men? That is about the test of it. Was it adopted solely with the view of bettering the condition of the men?

Mr. Tollerton: I would say that that was the primary object. Now, there is no doubt, as brought out by Mr. Stone, that it does benefit operation right straight through, but as said before, it can scarcely be traceable in dollars and cents. In that respect, it is different than the superheater and the brick arch. You can trace the economy of those two devices in dollars and cents.

Mr. Stone: Why did you change your equipment from the Westinghouse brake valve in the cab to the New York brake valve?

Mr. Tollerton: Because the railroad company made a contract with the Westinghouse Company for their equipment.

Mr. Stone: With the New York Company you mean, do you not? You changed from the Westinghouse?

Mr. Tollerton: I beg your pardon. We changed from the New York to the Westinghouse. That is our standard at the present time.

Mr. Stone: But when did you first adopt the New York equipment?

Mr. Tollerton: It was before my connection with the railroad; but I would say that it was about twelve years ago.

Mr. Stone: I ran my last trip for the Rock Island in May, 1903, and we had no New York equipment at that time, that I know of.

Mr. Tollerton: I think that is true. They went into the New York equipment on a ten year contract. After its expiration they made a contract with the Westinghouse. I think that contract dates about two years ago. That is why I say about twelve years ago is our date of going to the New York equipment.

Mr. Stone: But the fact remains that after you made the contract with the New York Brake Company you did take off Westinghouse equipment that was in good shape and change it to New York equipment, did you not?

Mr. Tollerton: I want to say that I did not make the contract with the New York Air Brake Company.

Mr. Stone: You were in charge of the road at the time the change was being made, were you not?

Mr. Tollerton: No, sir.

Mr. Stone: Didn't you ever take off any Westinghouse equipment and put in New York equipment in its place?

Mr. Tollerton: No, sir; unless the Westinghouse equipment was obsolete and worn out.

Mr. Stone: The fact remains that some of it is still left yet that was on at the same time? So that it could not have been obsolete.

Mr. Tollerton: That is very true; and it will stay in operation until it is worn out.

Mr. Stone: Which will probably not be in our day.

Mr. Tollerton: I hope to remain with the company a number of years.

Mr. Stone: Well, it will probably stay in commission a number of years yet, will it not?

Mr. Tollerton: Yes.

Mr. Stone: So there was a change made at a cost of thousands of dollars, not for the benefit of the engineers, because there was no request made at the time that they change from Westinghouse equipment to New York equipment or to change back again, was there?

Mr. Tollerton: I do not agree with that statement that they went to the expense of thousands of dollars to make this change. They made the contract with the New York Company to furnish the equipment for a period of years, and as the present equipment at that time wore out it was replaced with the New York equipment, which is interchangeable in every way with the Westinghouse.

Mr. Stone: That is, everything except the engineer's brake valve?

Mr. Tollerton: That requires but a very slight change to bring one to the other—a mere change in piping.

Mr. Stone: At the time this contract was made, do you know whether or not the Rock Island officials were stockholders in the New York Air Brake Company?

Mr. Tollerton: I know nothing about it.

Mr. Stone: In your testimony yesterday you said the steam turret had been placed outside of the cab so that the engineer would not have the steam in the cab from leaky valves?

Mr. Tollerton: Yes, on our last locomotives.

Mr. Stone: Is that the sole reason for placing it outside?

Mr. Tollerton: That was the sole reason—to make it more comfortable for the engineer in the cab.

The Chairman: Will you kindly tell us what is the nature of the steam turret? Tell us what it is.

Mr. Stone: Have you a blue print there?

Mr. Tollerton: No; I have not. In my testimony yesterday I explained it, however, and I will do it again. The steam turret is an object that goes on top of the boilerhead, a dome-shaped object, made in various shapes, and from that radiates the steam pipes that supply the steam to both injectors, the lubricator, the air pump and various other appliances. On the average locomotive, that turret is inside the cab. If any leaks occur in the various joints that I have described, steam will escape in the cab, making it uncomfortable for the man on the road. On our last locomotives I put that steam turret outside of the cab, the functions being entirely the same; but it removes that feature of any leak occurring en route, causing annoyance to the engineer.

Mr. Stone: It also has the further advantage of making it more easily accessible to the shop men who are now required to pack the valves, does it not?

Mr. Tollerton: No. On our locomotives we have a ventilator in the cab roof that makes the turret just as accessible as the one outside.

Mr. Stone: You mean he can get up on top of the roof and lay down and reach down through the opening, and reach the turret in that manner?

Mr. Tollerton: I do not say anything of the kind. The ventilator top comes up, and exposes the turret, making it very accessible.

Mr. Stone: Can he stand on the footboard inside the cab and reach the turret and pack the valves, or is it necessary to climb up on top of the boiler?

Mr. Tollerton: It all depends on his height. I can.

Mr. Stone: That is the advantage of being tall, then?

Mr. Tollerton: That is one of the advantages.

Mr. Stone: I am to understand from that, then, that the rest of them could not? For example, counsel for the railroads would have to get a stepladder?

I think you stated yesterday that when traffic was heavy you had to reduce tonnage to handle the business. You understand, of course, that that is in direct conflict with the testimony of Mr. Keefe, who testified that when traffic was heavy they could keep their trains up to a better tonnage?

Mr. Tollerton: My testimony was based on my own knowledge of business conditions throughout the West.

Mr. Stone: Then, I would take it from that, that you do not agree with the statement of Mr. Keefe?

Mr. Tollerton: I did not hear Mr. Keefe's statement.

Mr. Stone: In the case of those engines that made these special tests, are we to understand that they were both in the same mechanical condition; that is, so far as being in first class shape is concerned?

Mr. Tollerton: I have been so informed by the railroads making the tests.

Mr. Stone: I think that is all that I care to ask you, Mr. Tollerton. Mr. Carter wants to ask you some questions.

Mr. Carter: Have you a copy of yesterday's proceedings, Mr. Tollerton?

Mr. Tollerton: Yes, sir.

Mr. Carter: Will you turn to page 4300, please?

Mr. Tollerton: Yes, sir.

Mr. Carter: Near the bottom of page 4300, I will read from the proceedings:

"Mr. Nagel: Mr. Tollerton, what is the precise purpose of this table? Is it to show that these firemen do not need any assistance, or that they are not earning more than they are now getting?

"Mr. Tollerton: Mr. Nagel, the precise reason for this tabulation and observation, is based on their Article 13. That calls for two locomotive firemen in freight service, in locomotives burning coal that weigh 185,000 pounds and over on drivers."

Do I understand that is the only purpose?

Mr. Tollerton: Of taking these observations?

Mr. Carter: Yes, sir.

Mr. Tollerton: That was the only purpose, as I understand it.

Mr. Carter: Now, please turn to page 4304. I shall read:

"Mr. Nagel: I understood you to say this morning that the use of a superheater reduces the consumption of coal and labor of the fireman, and increases the weight on drivers, but that that does not enable you to carry more tonnage, because tractive power is the test at the start. The superheater does not help until the engine has got its speed.

"Mr. Tollerton: That is exactly true, Mr. Nagel. The starting effect of two engines of identical dimensions, one equipped with a superheater, and the other not, is not changed whatsoever. The superheater does not become effective until after the locomotive starts and accumulates speed.

"Mr. Nagel: Then you have the result that you save fuel, and you save the fireman labor, and you have increased the driving power, without practical result to the road, but with practical result to the wage scale?

"Mr. Tollerton: Yes, that is how it would work.

"Mr. Nagel: That is your interpretation?

"Mr. Tollerton: That is how it would work out."

You don't care to change that?

Mr. Tollerton: No, that testimony is correct. As stated in my testimony this morning, to clear up a possible doubt that the ideal operating conditions existed, that made the prevailing grade over which the train was to be moved, at some other point than the starting point, it would be possible to increase the tonnage on the train.

Mr. Carter: But not generally?

Mr. Tollerton: Not generally.

Mr. Carter: Will you now please turn to page 4233, from which I now read:

"Mr. Sheean: Now, Mr. Tollerton, as I remember, there was certain testimony here to the effect that the tractive force of a locomotive may be increased by applying a superheater. Can this be done?

"Mr. Tollerton: It cannot."

Mr. Tollerton: Yes, sir, go ahead, Mr. Carter.

Mr. Carter: Now, please turn—

Mr. Tollerton: Do you wish me to answer that, Mr. Carter?

Mr. Carter: Oh, you still maintain, do you not—

Mr. Tollerton: No change being made in either engine, the starting effort is the same.

Mr. Carter: But, Mr. Tollerton, in order that we may understand the difference between different terms, will you explain what tractive effort is?

Mr. Tollerton: Tractive effort is the pull that the engine exerts at the draw bar, in starting a train.

Mr. Carter: Well, does tractive power mean the same thing?

Mr. Tollerton: I would say yes.

Mr. Carter: Would tractive force mean the same thing?

Mr. Tollerton: Yes.

Mr. Carter: Now, explain the difference between horse power and tractive effort, tractive power and tractive force. I do not care anything in particular. Just the number of revolutions.

Mr. Tollerton: Well, tractive effort is the effort exerted at the start. When the speed accumulates to approximately ten miles an hour, tractive effort begins to fall and horse power effort building up. Is that the answer you want?

Mr. Carter: Yes. Now, are all of these generally measured by the draw bar pull, with a dynamometer car, if you wanted to see whether an engine would draw a train, or how much it would pull at ten miles an hour, twenty miles an hour, thirty miles an hour, or fifty miles an hour?

Mr. Tollerton: If the railroad has a dynamometer car, they are usually put in use.

Mr. Carter: Would draw bar pull indicate all these different terms?

Mr. Tollerton: With a dynamometer car behind the locomotive of a known tractive effort, I suppose that the dynamometer car would show a decrease at the draw bar of approximately 8 per cent less than the tractive effort, for the reason of the roller friction and the weight of the tender.

Mr. Carter: At ten miles an hour?

Mr. Tollerton: Possibly fifteen. As speed accumulates the roller friction increases.

Mr. Carter: Is it not a fact that the draw bar pull of a locomotive in motion is dependent largely upon the mean effective pressure of the steam in the cylinders?

Mr. Tollerton: The draw bar pull of a locomotive in motion, as I said before, decreases very rapidly according as the speed increases. Your horse power, however, increases in proportion.

Mr. Carter: Well, let us take a speed of twenty miles per hour. Anything that would increase the mean effective pressure in the cylinders of that locomotive, at that speed, would it increase the draw bar pull?

Mr. Tollerton: Slightly, yes.

Mr. Carter: Would it increase it in proportion, or in like ratio to the increase of mean effective pressure in the same formula?

Mr. Tollerton: You cannot discover a perceptible increase in your cylinder pressure, at that low speed.

Mr. Carter: How about 20 miles per hour?

Mr. Tollerton: You said 20.

Mr. Carter: Did I say 20?

Mr. Tollerton: Yes, sir. Now, go up to 40 miles an hour and I will agree with you.

Mr. Carter: You think at 30 miles per hour it would affect the mean pressure?

Mr. Tollerton: Well, I would not say as to just what the breaking point would be.

Mr. Carter: It is dependent entirely, is it not, upon the degree of superheat?

Mr. Tollerton: The temperature of the superheat at the present time is so well known, and its beneficial effect upon the cylinder at speed is so well known, that there is no contradicting that.

Mr. Carter: Is it because of this high superheat that the cylinder condensation is greatly reduced?

Mr. Tollerton: I presume I can answer your question better by an extract taken from the book of Robert Garbe, a German professor who was very closely associated with the inventor of the superheater, Schmidt.

Mr. Carter: Pardon me, did not Dr. Robert Garbe invent the superheater and apply it to stationary engines throughout

Germany, and did not Mr. Schmidt, the Locomotive Superintendent of Prussian State Railways, seek the assistance of Dr. Robert Garbe in applying his patent to locomotives?

Mr. Tollerton: I could not say as to that, Mr. Carter.

Mr. Carter: That is true, Mr. Tollerton.

Mr. Tollerton: Dr. Garbe says in his book:

"Application of Double Superheated Steam to Locomotives. The saving of coal is due to the absence of cylinder condensation, on a simple engine using highly superheated steam, averages about 25 per cent when compared with that of a saturated steam locomotive of the same weight. In the neighborhood of 20 per cent, when compared with two or four cylinder compounds."

Mr. Carter: The question I asked, Mr. Tollerton, was if this high degree of— Pardon me, I have forgotten just what the question was. Will you read it?

(Question read by the reporter as follows: "Is it because of this high superheat that cylinder condensation is greatly reduced?")

Mr. Tollerton: Yes, I will answer to that.

Mr. Carter: Then, if, at 10 miles an hour, the cylinder condensation is greatly reduced and the mean effective pressure is much greater, would not that add also to the drawbar pull?

Mr. Tollerton: There would be a slight increase there, due to the proportion in which the energy is transmitted to the cylinder.

Mr. Carter: On the other hand, Mr. Tollerton, if, because of defects in the superheater, a high degree of superheat was not obtainable, regardless of the speed, the cylinder condensation would not be reduced, would it?

Mr. Tollerton: The superheater has the same bearing on a satisfactory performance of the locomotive that any of its other appliances have. We maintain the superheater in a high state of efficiency all the time. The same result that you speak of would be brought about if the flues started leaking.

Mr. Carter: Then, if on a superheater anything is defective, or anything results in a failure to obtain a high degree of superheat, the superheater is of no real benefit, is it?

Mr. Tollerton: In that event the engineer and fireman would cut off the train, and come in light.

Mr. Carter: Is it not a fact, Mr. Tollerton, that it is often the case that the fireman and engineer clean the honeycomb off the flue sheet, and sometimes try to pull it out through the superheater tubes before the superheater ignites?

Mr. Tollerton: I don't accept that as a fact.

Mr. Carter: They cut the engine off and go in.

Mr. Tollerton: If the efficiency of the superheater should fall as low as you describe, that would be the result.

Mr. Carter: But, Mr. Tollerton, the superheater could fail entirely of itself, and yet you could have a high steam pressure in your cylinder, enough to pull a good many cars, couldn't you?

Mr. Tollerton: The superheater, the failure thereof, is like the failure of any other part of the locomotive. It decreases the efficiency of the engine and makes it incapable of performing its duty. The result is an engine failure.

Mr. Carter: Then I understand you to say that unless you get this high degree of superheat the engine cannot pull any cars?

Mr. Tollerton: I do not think I made that remark.

Mr. Carter: Now, will you explain what would be done if you failed to get the high degree of superheat because of some failure on the part of the superheater. You said the engineer and fireman would cut off the engine and go in with the engine. Now, is it not a fact that the engine could pull practically as much, if they could maintain steam pressure, as that same engine pulled before the superheater was installed?

Mr. Tollerton: No.

Mr. Carter: Then an engine with a given cylinder dimension, carrying 160 pounds of steam, could pull as much with that 160 pounds of steam if there was a superheater on it? I am not talking about high speed now.

Mr. Tollerton: The increase of your steam temperature in the cylinder, when it is raised from the average boiler pressure at 185 pounds, giving you a cylinder temperature of about 385 pounds, when that is increased above that point it gives a more highly efficient steam in the cylinder.

Mr. Carter: And if you did not have any superheat above that point, you would still have the original pressure and could operate your train as though there were no superheater in the locomotive?

Mr. Tollerton: I would not accept that as a fact.

Mr. Carter: Do you mean to say that the presence of the superheater units and the reduced heating surface, would make it harder to fire a locomotive with a superheater in than one without a superheater, unless the superheater was working perfectly?

Mr. Tollerton: I want to correct your statement on the reduction in superheat or in the reduction in heating area. While it is true that the application of superheat does reduce slightly the square feet of heating surface of the tubes, it does not in any way decrease the heating surface of the fire box, which has an evaporating value, as compared with the flues, of about 550 per cent increase, or five and a half to one.

Mr. Carter: Then it does decrease the heating surface to some extent?

Mr. Tollerton: Of the tube?

Mr. Carter: Yes.

Mr. Tollerton: Yes, the tube heating surface slightly decreases.

Mr. Carter: And then without any perceptible degree of superheat it does add to the difficulty of keeping an engine hot?

Mr. Tollerton: I would not say as to that. My statement made before was that the successful operation of any locomotive depends upon all of its parts being in working condition. The picture that you draw would make one of the important parts defective.

Mr. Carter: I believe you said, Mr. Tollerton, several times, that a superheater saves coal?

Mr. Tollerton: Yes.

Mr. Carter: That has been the general conclusion, has it not, by all mechanical writers and speakers upon the subject?

Mr. Tollerton: Well, it is largely based on thousands of road tests.

Mr. Carter: Are you acquainted with the Traveling Engineers' Association and its purposes?

Mr. Tollerton: In a general way, yes.

Mr. Carter: Will you explain for the benefit of the Board what a traveling engineer is?

Mr. Tollerton: Well, his duties consist of traveling over

the line and supervising the work of the engineers and firemen.

Mr. Carter: He has direct charge, hasn't he, of a locomotive, from an official point of view?

Mr. Tollerton: I would not say so, only in service under the supervision of the superintendent, or the ranking officer.

Mr. Carter: Well, does the superintendent or the ranking officer generally ride on the locomotives?

Mr. Tollerton: I have seen a number of them riding there.

Mr. Carter: Well, do they generally do so?

Mr. Tollerton: That I could not say. It is not supposed to be their entire duty, however, riding locomotives.

Mr. Carter: Then, I do not understand that a traveling engineer or road foreman of engines has direct supervision over the locomotives in operation?

Mr. Tollerton: I didn't catch that.

Mr. Carter: From your remarks, I understand that traveling engineers do not have direct supervision over the locomotives while in operation on the road?

Mr. Tollerton: They have direct supervision in the successful operation of the locomotives.

Mr. Carter: They are generally men well informed on the matter of operating locomotives, are they not?

Mr. Tollerton: They are all recruited from locomotive engineers.

Mr. Carter: They have an association, do they, where they meet annually and discuss mechanical matters?

Mr. Tollerton: Yes.

Mr. Carter: I have here the proceedings of the Traveling Engineers' Association for 1910, and we have a committee report upon the subject of superheat as applied to locomotives. I will just read some points in the report.

"Conclusions based on a superheater test: First, there is a marked decrease in coal consumption for a superheater engine. The decrease averages 20.8 per cent per thousand ton miles, for upgrade runs, and 11.5 per cent for downgrade runs, and 19.6 per cent for constant hard working engines on heavy grades."

That is about the way you understand it?

Mr. Tollerton: My knowledge of superheaters on the Santa Fe Railroad?

Mr. Carter: No, this is not on the Santa Fe. I beg your

pardon: I read the paragraph too early. This is a general conclusion from the experience of all roads.

Mr. Tollerton: Of course, you art quoting from the 1910 report?

Mr. Carter: Yes, sir.

Mr. Tollerton: Superheating has improved very rapidly since 1910. It was in its infancy then.

Mr. Carter: In 1910, do you think that was about right?

Mr. Tollerton: I would not say.

Mr. Carter: You would not say it was wrong, would you?

Mr. Tollerton: I do not know about the report of 1910.

Mr. Carter: I will tell you. Mr. M. H. Hague was the chairman of the committee. Do you know who he is?

Mr. Tollerton: No, sir.

Mr. Carter: You do not know Mr. Hague?

Mr. Tollerton: No, sir.

Mr. Carter: Do you know Mr. Max Towles? You are not a member of the Traffic Engineers' Association, are you?

Mr. Tollerton: No, sir.

Mr. Carter: If a committee of traffic engineers made that report in 1910, do you think it would be correct?

Mr. Tollerton: As far as their investigation was able to lead them to that conclusion, I would say yes.

Mr. Carter: And they found that there was a saving in coal of 19.6 per cent for constant, hard working of engines on heavy grades. How fast do you suppose that train would be running?

Mr. Tollerton: Probably ten miles an hour.

Mr. Carter: Then it is a fact that a superheater does have its effect at less than twenty miles an hour?

Mr. Tollerton: I do not think I made the statement that the superheater did not have its effect before twenty miles an hour. I said that it did not reach its pinnacle in saving until approximately a speed of that kind was reached.

Mr. Carter: The fourth conclusion of the committee is this:

"The superheater engines show, for heavy working, a decrease of 16.3 per cent in coal per indicated horsepower hour."

You would not care to express an opinion on that, would you?

Mr. Tollerton: It seems to me that the locomotive company gives about 20 per cent decrease. They are very conservative.

Mr. Carter: On slow trains as on a heavy grade. Sixth. There is a reduction in coal of 14.1 per cent per drawbar horse power in favor of superheated engines. Would you agree to something like that?

Mr. Tollerton: That might be the case. You are quoting from a long time ago, though.

Mr. Carter: Well, I am going back further. How long has the Canadian Pacific been operating superheaters? How long have Mr. Vaughn and Mr. Horsey had superheaters?

Mr. Tollerton: I know him very well, but I could not answer that question. I could say in a general way, but not very close on the dates.

Mr. Carter: Did they not have superheaters ten, twelve and fifteen years ago on the Canadian Pacific Railroad?

Mr. Tollerton: I could not answer that.

Mr. Carter: You do not attend Master Mechanics' conventions?

Mr. Tollerton: Yes.

Mr. Carter: Are you a member?

Mr. Tollerton: Yes.

Mr. Carter: Have you not often heard discussions by Mr. Vaughn on that subject?

Mr. Tollerton: Quite often.

Mr. Carter: Did he not tell the Master Mechanics' Convention, years ago, about his experience with the superheaters?

Mr. Tollerton: If he did, it is in the Master Mechanics' Proceedings.

Mr. Carter: You do not remember?

Mr. Tollerton: No.

Mr. Carter: By the way, before we take up next—this decrease in saving of coal.

Mr. Tollerton: If you will excuse me, Mr. Carter, just for a moment. In the 1910 proceedings of the Master Mechanics' Association, on page 219, I find Mr. Vaughn quoted as saying that a saving of 33 per cent had been brought about with the superheater.

Mr. Carter: Then, Mr. Vaughn, at the same time, as you

remember that so well—you don't remember that the Canadian Pacific had superheaters for many years?

Mr. Tollerton: I am quoting this from the proceedings of the convention. I do not recall him making that statement in 1910.

Mr. Carter: The report of the committee, as I have read it, specifically states that this decrease in coal consumption is per thousand ton miles, or per indicated horse power, or per drawbar horsepower hours. I am going to turn now to the Railway Age Gazette of June 18, 1914. In reviewing a lengthy article on the superheater:

"Superheaters make it possible to get a higher sustained tractive power out of a locomotive."

You don't agree with that?

Mr. Tollerton: Yes, I agree with that fully, but that is at speed.

Mr. Carter: Well, firemen do not work, unless an engine is at speed. When an engine is standing still, a fireman is not shoveling coal.

Mr. Tollerton: No, the superheated engine does sustain its tractive effort longer, at speed, than a saturated engine.

Mr. Carter: This article begins this way: "Tests of superheater locomotives in both passenger and freight service have shown a saving of fuel for a unit amount of work done, amounting to as much as 25 per cent. Somewhat less than this must be expected in regular service, because in every day operation, the approach to the result achieved by tests will be governed by the essential factors of good firing, proper handling of the locomotive and maintenance."

Now, they continue: "Superheaters make it possible to get a higher sustained tractive power out of a locomotive."

Then the report says: "The savings resulting from their use, therefore, would not show upon the locomotive mileage basis, but would appear when figured out on ton mile basis, which is to a certain extent, proportional to the work done."

Now, this extensive report in June, 1914, says:

"The savings resulting from their use, therefore, would not show upon a locomotive basis, but would appear when figured out on the ton mile basis." Do you agree with that?

Mr. Tollerton: Only in a general way. Your saving results in either locomotive mile or ton mile basis.

Mr. Carter: I understood you to say, yesterday, that with the advent of the superheater, there had been no increase in tonnage or number of cars.

Mr. Tollerton: I spoke from my own knowledge of the subject, and qualified that by saying there might be ideal operating conditions that would permit an increased tonnage.

Mr. Carter: Mr. Chairman, pardon me, but the evidence of this witness is of such vital concern to the interests of locomotive firemen, that I hope you will bear with me if I am dilatory in conducting this cross-examination. The article I have just read specifically states that the savings resulting from the use of superheaters, therefore, would not show upon a locomotive mileage basis, but would appear when figured out on a ton mile basis.

Mr. Byram: What article is that, Mr. Carter? Who wrote it and what authority does it originate from?

Mr. Carter: It is from the Master Mechanics' Association proceedings. It is a report upon the subjects of smoke prevention, locomotive tests, brake and signal instructions, train resistance and fuel economy.

Mr. Byram: What are the names of the committee? Are they signed to it?

Mr. Carter: I have it in the volumes of the Master Mechanics' Association here.

Mr. Byram: That is not important, though.

Mr. Carter: It is a committee report.

Mr. Byram: I thought perhaps the names of the members were there.

Mr. Carter: And I want to say, gentlemen, that that is the latest conclusion of a committee of master mechanics.

Mr. Park: Was it adopted, Mr. Carter, or just presented for discussion?

Mr. Carter: Why, it was discussed at length. I will read, later on.

Mr. Tollerton: Could I say a word, Mr. Carter?

Mr. Carter: Yes, sir.

Mr. Tollerton: I should like to quote from the same asso-

ciation proceedings, American Railway Master Mechanics' Association.

The Chairman: We cannot hear you.

Mr. Tollerton: American Railway Master Mechanics' Association, 1911 procedings, page 235, by Professor C. H. Benjamin. He is dean of the Engineering School of the Purdue University, LaFayette, Indiana. He states:

"A locomotive, equipped with a superheater, giving from 200 to 240 degrees of superheat, will, during the time of running, effect a saving in coal consumption of from 20 to 30 per cent over the same locomotive using saturated steam."

From the 1911 proceedings, page 249, H. T. Bentley, with the Chicago & North Western Raliroad:

"On our Chicago to Elroy run, we have two superheated steam engines and two saturated steam engines. In testing them there, it was found that there was an average economy of 25 per cent in fuel consumed, in favor of the superheater."

Mr. Devoy, of the Chicago, Milwaukee & St. Paul, in 1911 proceedings, page 251:

"The consumption in the case of the superheated engine showed that the average pounds of coal was 11.91, or a saving of 35 per cent in favor of the superheater."

That is on a 100 ton miles.

Mr. Carter: Mr. Tollerton, I agree with you that there is a great saving in coal, with the use of the superheated engine, per ton mile. Now, you read from the 1912 or 1913 proceedings?

Mr. Tollerton: 1911, I was quoting at that time. Do you want me to come down to date?

Mr. Carter: Go ahead.

Mr. Tollerton: The 1912 proceedings, page 258, Mr. M. K. Barnham, of the Illinois Central Railroad:

"I may say that with the locomotives we have on order, we will have about 200 superheated engines in service by the last of this year, and we have no doubt whatever, as to their success. We are getting about 20 per cent fuel economy and about 25 to 30 per cent economy in water, and we are able to run water tanks regularly, where formerly the locomotive had to stop."

Mr. Carter: There is a little more of that, along the same line, is there not? I agree with that statement.

Mr. Tollerton: That is all I have got in the extract.

Mr. Carter: But what I want to say is this: Have you overlooked the fact that these statements were with regard to the same tonnage, the same engine, the same conditions?

Mr. Tollerton: Oh, no, with the same tonnage and under the same conditions, a conservative estimate of a locomotive equipped with a superheater and brick arch would be 30 per cent.

Mr. Carter: It would be 20 per cent, would it not?

Mr. Tollerton: No, sir, 30 per cent, with both appliances.

Mr. Carter: 30 per cent, you say?

Mr. Tollerton: Yes, sir.

Mr. Carter: Of course, very few would agree to that, but then your experience would teach you, of course.

With regard to this statement I am reading from the Railway Age Gazette, it is from the Master Mechanics' Proceedings of 1914, and I understood you to say a while ago that we know a great deal more about the superheaters now than we did three or four years ago?

Mr. Tollerton: Yes, sir.

Mr. Carter: This Master Mechanics' convention report says:

"The saving resulting from their use would not show upon a locomotive mileage basis, but would appear when figured on a ton mile basis."

I understood you to say, or to intimate, that the superheaters did not increase tonnage to a very considerable extent?

Mr. Tollerton: That is true.

Mr. Carter: Do you know Mr. DeVoy, the Assistant Superintendent of Motive Power on the Chicago, Milwaukee & St. Paul Railroad?

Mr. Tollerton: Yes, sir.

Mr. Carter: Mr. DeVoy said, at the Master Mechanics' Convention in 1911:

"We were able to haul from 150 to 300 tons more freight with a superheater engine than we were with a non-superheater engine."

Your experience has been along that line, or not?

Mr. Tollerton: It would all depend upon what your base

tonnage was. If it was 4,000 tons to start with, your 200 or 300 additional tons would be a very small percentage.

Mr. Carter: Do you know Professor L. E. Endsley, who attends your conventions?

Mr. Tollerton: I have met him.

Mr. Carter: Do you know what authority he is upon mechanical matters?

Mr. Tollerton: No, I do not.

Mr. Carter: Do you know what university or college he is connected with?

Mr. Tollerton: I do not.

Mr. Carter: Professor L. E. Endsley, in the Master Mechanics' proceedings of 1911, says:

"I think it will be possible, with this high degree of superheat to increase the power of a locomotive 25 per cent."

Is that about the same as your observation?

Mr. Tollerton: Was he speaking of a freight or of a passenger locomotive?

Mr. Carter: I do not know.

Mr. Tollerton: I would have to know, before I could answer.

Mr. Carter: Have they got superheaters for freight engines different from the superheaters for passenger engines?

Mr. Tollerton: No, sir.

Mr. Carter: They all work the same way?

Mr. Tollerton: The principle is just the same.

Mr. Carter: Here is a committee report of the Master Mechanics' Convention of 1913:

"We believe that from an operating standpoint the locomotive of great power is more desirable than one which will show great economy. Aside from any consideration of economy, the superheater adds to the power of a locomotive at the critical point, and where with saturated steam the heat-carrying capacity of the steam has reached a maximum; beyond this point, with a superheater which adds heat to the saturated steam, we can proceed to the development of much greater power."

Has that been your experience with superheaters on the Rock Island?

Mr. Tollerton: I think that would be a fair statement. The

critical time is when you are going up hill. If you haven't got the energy, you probably double. Superheat aids you at that time.

Mr. Carter: The Railway Age Gazette of November 20, 1914, quite a recent issue, in an editorial reviewing the situation, says:

"Another opportunity for utilizing the economy of superheated steam is to be found on roads or divisions where the purchase of heavy motive power in order to increase train loads will necessitate heavy expenditures for increasing the track and bridge capacity. In such cases, the application of superheaters to existing engines will increase their hauling capacity, and thus postpone the time when an increase in the weight of rails and the strength of bridges becomes necessary."

Is that in accord with your experience?

Mr. Tollerton: If the ideal operating condition existed, as I said before, where you could take the prevailing grade at speed, it is possible to slightly increase tonnage on your superheater engine; but in general practice the tonnage is governed by the starting effort.

Mr. Carter: The Railway Age Gazette of December 13, 1912, in quoting from what they describe as a lively discussion of a paper on the factors in the selection of locomotives, before the Railroad Session of the American Society of Mechanical Engineers, says:

"There will always be an increase in hauling capacity obtainable, but whether the theoretical maximum can be obtained depends upon the size of the cylinder, and depends also on the quality of the saturated steam engines, with which the superheated engine is compared, or to which the superheater has been applied, whether the engine is correctly proportioned, or over cylindered, or deficient in boiler capacity. It depends also on the service in which the locomotives are used; whether the service is such as to be favorable to developments of higher degrees of superheat and more or less unfavorable to the saturated steam locomotive."

Does not that indicate that many of these tests might not be reliable because of the difference in locomotives?

Mr. Tollerton: No.

Mr. Carter: The same authority goes on to say:

"If a larger tractive effort at a certain speed is required, either the cylinders of the superheater engine must be increased or the engine has to be worked at larger cut-offs, which question is met possibly by the increased steaming capacity of the boiler."

That is said with regard to superheaters. You do not agree with that, do you?

Mr. Tollerton: I think the application of a superheater so improves the locomotive boiler that it decreases the work of both the engineer and fireman, and enables them to get over the road quicker, and generally aids in all matters of that kind.

Mr. Carter: An editorial from the Railway Age Gazette of April 12, 1912:

"A distinct improvement in the efficiency of operation of the New York Central Lines during the year 1911, as compared with 1910, was noted in our reviews of the annual reports of the principal companies of the System in the Railway Age Gazette of March 22. On the New York Central, the Lake Shore and the Big Four, there has been an important increase in the train loading, without a corresponding increase in the loading per car, which, to a large extent, counteracted the effect on the cost of conducting transportation, of increased wages."

That is said with regard to the New York Central Lines.

Mr. Tollerton: The New York Central Lines cannot be compared with the Western railroads that we have under discussion. Density of traffic would bring about that situation. Unfortunately the Western lines have not the density of traffic, with the corresponding result that the large locomotives that are now receiving the high rate of pay for both the engineers and firemen are not hauling their maximum tonnage.

Mr. Carter: Did you haul your maximum tonnage in October, 1913?

Mr. Tollerton: That I could not tell you, Mr. Carter.

Mr. Carter: With the same density of traffic, would it indicate a higher managerial efficiency of Eastern roads, if they reach this result, while Western roads could not reach it?

Mr. Tollerton: The business is not in the West. That is the answer, in my judgment.

Mr. Carter: "In the case of the Lake Shore—"

I continue reading—

"This was a large factor in actually reducing the cost of conducting transportation $1,198,000."

That means that it not only overcame the last wage increase, but it was to the extent of $1,198,000—

Mr. Byram: How did that read, Mr. Carter, I did not quite get it.

Mr. Carter: This is a review of the superheater (Reading).

"In the case of the Lake Shore this was a large factor in actually reducing the cost of conducting transportation $1,198,-000."

Mr. Byram: What was your conclusion about that?

Mr. Carter: The article shows, even with the last wage increase of employes before this time, by the addition or installation of superheaters they overcame all that wage increase to the extent that the cost of conducting transportation was reduced $1,198,000.

Mr. Byram: Is that what it says, Mr. Carter? Is that what the article says?

Mr. Carter: I read it, exactly.

Mr. Byram: I did not understand that your conclusion was the same as the article. I understood it to read that it was a factor.

Mr. Carter: I will continue to read, and get to the superheater business.

"On the New York Central the transportation cost was $996,504 in 1910. On the Big Four it was reduced $430,408, and on the Michigan Central it was increased only $25,000, while the pay of road engineers alone increased $82,000 during the year. Inquiry as to the means by which the increased cost of labor employed in train movement was partially or wholly, or even more than wholly offset on the various lines, has elicited the information that an extensive adoption of superheaters on the locomotives of the system has made possible a large increase in capacity per locomotive, making it practicable to haul additional cars per train at proportionately lower cost and with a large saving in engine mileage, which was also appreciably affected by the reduced need for double-heading."

I now refer to Exhibit 35, which you introduced yesterday. So much has been brought out in the examination and cross-

examination concerning this exhibit that I will not repeat what has been said.

Turning to Table 1, Sheet No. 1, I note you say that the average total time on duty was 8 hours and 47 minutes.

Mr. Tollerton: Yes, sir.

Mr. Carter: The average time supplying coal to the fire box was 1 hour and 42 minutes.

Mr. Tollerton: Yes, sir.

Mr. Carter: And the average tons of coal per trip was 8.67?

Mr. Tollerton: Yes, sir.

Mr. Carter: I note in the explanatory note you say:

"Not only time actually supplying coal to fire box, but also time consumed in leaving and returning to the seat box of gangway."

These men that are checking this up could tell you how long it would take a fireman to get off of his seat box?

Mr. Tollerton: Yes.

Mr. Carter: About how long would it take an ordinary fireman to get off his seat box?

Mr. Tollerton: I should not care to answer that, but it should be a very small fraction of a minute.

Mr. Carter: It would be about like a man getting out of a chair, jumping down out of a chair?

Mr. Tollerton: Just about, yes.

Mr. Carter: About how long would it take for him to return to his seat box?

Mr. Tollerton: As I recall the figures, they reported from 24 to 30 seconds.

Mr. Carter: From 24 to 30 seconds?

Mr. Tollerton: From the time he got off of his seat box, putting in a fire of approximately six scoops of coal and returning to the seat box.

Mr. Carter: Then you say that the average time supplying coal to the fire box, including this getting up and down, on this entire trip, or, rather, on all of these trips, was 1 hour and 42 minutes?

Mr. Tollerton: Yes; as reported.

Mr. Carter: I have performed some computations. 1 hour

and 42 minutes equals 102 minutes. 8.67 tons equals 17,340 pounds, or the fireman shoveled 170 pounds of coal per minute.

It is shown that he was on duty 8 hours and 47 minutes, or 527 minutes on duty. I find by carrying out a proportion here that the fireman shoveled 170 pounds of coal in one minute, and then rested five minutes—5.6 minutes.

Do you think that if a fireman would shovel 170 pounds of coal in one minute, he ought to rest five minutes?

Mr. Tollerton: I do not believe that was the way that these figures were brought about.

Mr. Carter: Yes; but yesterday, if I am right—by turning to page 4296, we find interrogatories by the Chairman and your replies.

"The Chairman: How often is a fireman required to put coal in the furnace in running an engine, say, for an hour, ordinarily?

"Mr. Tollerton: It greatly depends, of course, on his train.

"The Chairman: Well, say he has a heavily loaded train.

"Mr. Tollerton: It depends on his speed.

"The Chairman: Making 20 miles an hour.

"Mr. Tollerton: And on practically a level grade?

"The Chairman: Well, yes; on a level grade.

"Mr. Tollerton: I would say that possibly one fire every ten minutes would be a fair statement.

"The Chairman: Suppose he is going up a grade of 2 per cent or more?

"Mr. Tollerton: His work would be considerably lighter."

I think you meant to say "heavier"?

Mr. Tollerton: No, sir; not the fireman's work.

Mr. Carter: Lighter, going up a heavier grade?

Mr. Tollerton: With the speed reduced.

Mr. Carter: His work would be considerably lighter on a grade than it would be on the level?

Mr. Tollerton: If the speed was maintained, it would be heavier.

Mr. Carter: Then when you cut down grades, you increase the work of the fireman? Is that right?

Mr. Tollerton: You increase your ability to get trains over the road at better speed.

Mr. Carter: You just made the statement that the fireman would not have to work so hard on the grade. If we cut down the grade, then, he has to work harder, does he not?

Mr. Tollerton: If the speed is maintained. His work will be governed by the speed of his engine, based on his train.

Mr. Carter: I have figured out that if he put in a fire every ten minutes on these 1,556 test runs, every ten minutes he would fire 1,700 pounds; that is, if he only put the fire in while he was actually firing. Was that right?

Mr. Tollerton: I have not made the calculation.

Mr. Carter: Well, if at any time my computations are found to be inaccurate, they will be in the record and can be corrected. I am liable to make mistakes once in a while, the same as others.

Now, Table 2, Sheet 1. I find here that, of the 474 test runs in freight service, the average time that the fireman was supplying coal to the fire box was 132 minutes, and the average tons of coal burned was 24,000 pounds, or 181 pounds in one minute. Carrying out the ratios and proportions, I find that, including the entire time he was on duty, 6,579 minutes, he shoveled 181 pounds of coal in one minute and then rested 4.38 minutes. Do you think that would be an unusual rest, for a trip as long as that, shoveling 181 pounds in one minute, and then taking 4 minutes to catch his breath?

Mr. Tollerton: That is not the way these observations or calculations were made.

Mr. Carter: You say here the average time performing no physical labor was so much?

Mr. Tollerton: Yes, sir.

Mr. Carter: Well, I am taking these tables for what they say. He was only performing the physical labor of supplying coal to the fire box, according to these 474 tests, 132 minutes on all these runs.

Mr. Tollerton: But it was stretched over a period of 9 hours and 39 minutes.

Mr. Carter: That is just exactly what I figured out; that for the one minute he shoveled 181 pounds, and he then rested 4.38 minutes. I asked in the question:

Don't you think a man would want to rest 4.38 minutes after he had fired 181 pounds in one minute, or 60 seconds?

Mr. Tollerton: Well, on that calculation he is resting nearly 80 per cent of his time—according to your own figures.

Mr. Carter: You do not think, then, after a fireman shovels 181 pounds of coal in a minute that he should rest 4.38 minutes?

Mr. Tollerton: Mr. Carter, I have never made a statement that I do not consider the fireman as working, on the present locomotive. I do. I consider both the engineer and fireman working, and performing sincere and honest duty all of the time.

Mr. Carter: I understood from what you said yesterday that you indicated that the fireman had a kind of an easy job.

Mr. Tollerton: I did not say so.

Mr. Tollerton: I didn't say so.

Mr. Carter: His average time performing no physical labor was 6 hours and 5 minutes, or 527 minutes, I believe it was; first test.

Well, now, we will find out what saturated engines do, compared with superheated engines.

Turn to Table 3 of Sheet No. 2. First, taking the saturated engines, eighty-four trips. The average time supplying coal to the fire box was 164 minutes. The average tons of coal per trip, thirteen, or 150 pounds in one minute. The average total time on duty was 717 minutes.

Carrying out the computations, he shoveled 158 pounds of coal in one minute, and then rested an average of 4.37 minutes.

Now, passing to superheated engines, I find that on these forty-one trips the fireman's average time supplying coal to the firebox was 117 minutes; the average tons of coal per trip 24,000 pounds, or 205 pounds in one minute. He was on duty 650 minutes. Therefore he shovels 205 pounds of coal in one minute and rested 5.55 minutes.

According to this table 3,158 pounds of coal were shoveled on the saturated engine. Table 3 shows that more coal was shoveled per hour, the total time on duty, on a superheated engine, than on a saturated engine. How do you account for that?

Mr. Tollerton: There was less coal shoveled on the trip, on an average.

Mr. Carter: I find, however, with the superheated engine, on account of its speed, he would have to shovel 205 pounds in one minute, against only 158 pounds in one minute on the saturated engine.

Mr. Tollerton: Is that the calculation?

Mr. Carter: Those are my calculations. I carried them out.

Mr. Tollerton: You will also notice, though, he shoveled less coal on the trip that is done on the superheated engine, than he did on the saturated engine.

Mr. Carter: Do you show, anywhere, the basic data on which these compilations were based?

Mr. Tollerton: It is all here, Mr. Carter.

Mr. Carter: Have they been filed with the Board?

Mr. Sheean: I intended they should be, in the same way as these other papers. They were left here yesterday and will be again here, Mr. Carter. I supposed they were accessible to you last evening—all of the reports of all the railroad companies. They are here now.

Mr. Carter: Are they filed like our basic data was filed, for the permanent use of the Board?

Mr. Sheean: Precisely.

Mr. Carter: And with the permission of the Board, we could glance over those?

The Chairman: I understood Mr. Sheean to state yesterday afternoon that they were here and accessible for your use.

Mr. Sheean: Yes, and we will leave them in the custody of the clerk. The other basis tables, I understood you to say, might be taken back—the ones underlying Mr. Keefe's exhibits.

Mr. Carter: At the close of the proceedings.

Mr. Sheean: No; I understood him to say that they might be returned to the Transportation Building now. There is a truck load of them and no one about this building wanted the responsibility for them, but the others we will leave with the Secretary of the Board. They are all here now.

Mr. Carter: I find, Mr. Tollerton, by taking the first four tables, that Table 1 averaged 170 pounds per minute; table 2, 181 pounds per minute; table 3, on the saturated engine, 158 pounds per minute, and table 3, on the superheated engine, 205 pounds per minute, or an average of 178½ pounds per minute.

Mr. Tollerton: I think that is entirely within the capacity of a fireman to shovel.

Mr. Carter: I showed the average rest between the minutes.

Mr. Tollerton: As I say, I think that is entirely within the capacity of a man.

Mr. Carter: Under the conditions that a fireman has to shovel an average of 178½ pounds of coal in one minute, how many minutes rest do you think he should have between such minutes?

Mr. Tollerton: I would not be prepared to answer that. The table shows what his average time was performing no labor.

Mr. Carter: If he kept up that rate he would shovel 11,710 pounds an hour, or 117,100 pounds in a ten hour day. I note you say there in making these tests, you included only time actually supplying coal to the fire box, plus the time consumed in leaving and returning to the seat box or gangway. Is that right?

Mr. Tollerton: Yes.

Mr. Carter: If you were checking up the work of a telegrapher, would you say that only time should be counted that he had his hand on the key, plus the time he was receiving or writing messages received?

Mr. Tollerton: We are not making a check on the telegraphers.

Mr. Carter: But suppose you did, under identically the same conditions, to find out how much telegraphing he actually does.

Mr. Tollerton: I do not think that is a comparable question.

Mr. Carter: Then you do not think that a telegrapher should be subjected to as severe a test as a fireman?

Mr. Tollerton: I would not care to express an opinion on that.

Mr. Carter: But you would not test a telegrapher that way, would you?

Mr. Tollerton: I have never had any charge of telegraphers.

Mr. Carter: About how much of a brakeman's time is consumed in setting brakes?

Mr. Tollerton: Practically very little now, with the air brakes.

Mr. Carter: Well, are you a base ball fan?

Mr. Tollerton: Not yet.

Mr. Carter: Do you ever attend base ball games?

Mr. Tollerton: No, sir, not when I can play golf.

Mr. Carter: Never went to a base ball game?

Mr. Tollerton: Oh, yes.

Mr. Carter: You don't know what you have missed. You say you have, though, been to a base ball game?

Mr. Tollerton: Yes.

Mr. Carter: Now, I want to ask you about what proportion of a base ball pitcher's time is taken up in pitching the ball, including the time he was actually pitching the ball, plus the time he was throwing it, and plus the time he was at bat or on bases. He would not be engaged in manual labor more than 30 per cent of his time, would he?

Mr. Tollerton: From my knowledge of base ball pitchers, I would probably say it was due to the curve and the speed that he had.

Mr. Carter: Well, don't you think that a fireman puts in more time supplying coal to a fire box, than a base ball pitcher does to actually handle the ball?

Mr. Tollerton: I haven't any opinion on that.

Mr. Carter: Well, we will go back to the Rock Island Railroad. Don't you think that a fireman puts in more time, supplying coal to a fire box, than a telegrapher does, actually sending or receiving messages?

Mr. Tollerton: The Rock Island Railroad was included in these tests.

Mr. Carter: You would not care to say anything about anybody except the firemen?

Mr. Tollerton: That is the only thing that we have made a study of.

Mr. Carter: If a carpenter was driving nails into siding on a house, and by testing with a speed test, the contact of the hammer with the nail was one one-thousandth of a second, about how much time would that carpenter put in, actually driving nails?

Mr. Tollerton: That is a good deal like the question of "How old is Ann."

Mr. Carter: Now, the firemen are requesting an increase in wages, on the theory that they are not only working very

hard, but they are working harder, every year, because of the introduction of large engines and heavy tonnage.

Mr. Tollerton: The oil burning locomotives?

Mr. Carter: I didn't say that. I said coal burning locomotives.

Mr. Tollerton: You understand that there are certain railroads, parties to this movement, that have not a coal burning locomotive on them?

Mr. Carter: We will take care of that, when we get to it. Let us talk about coal burning locomotives now. We will turn to the annual report of the Traveling Engineers' Association. We will turn to the 19th Annual Report of the Traveling Engineers' Association. You do not know any of these traveling engineers, do you, Mr. O'Neill of the New York, Ontario & Western?

Mr. Tollerton: No.

Mr. Carter: Mr. O'Neill says: "Speaking of the laborious work that the firemen have to do today, on the heavy power, hauling heavy trains, I believe that we must sooner or later resort to something else besides hand firing."

That would not apply to the Rock Island, would it?

Mr. Tollerton: No.

Mr. Carter: 22nd Annual Report of the Traveling Engineers' Association. The Chairman, the President of the Traveling Engineers' Association, I believe, I haven't looked it up yet to see who the Chairman was, says:

"As a good many of you are now aware, we are getting engines up beyond the physical capacity of the firemen to handle them and naturally will have to come to the stoker. On the road that I am connected with we have quite a few stokers and we have two districts on which the tonnage was limited, not by the size of the locomotive, but by the physical capacity of the fireman. We have some pretty stiff grades, 42 miles on one division without a let-up, one per cent all the way. We have another one, 117 miles, one per cent, without a let-up. Consequently, if you were to hang a tonnage train behind the locomotives, which run from 26 by 30 to 29 by 30, both consolidation and Mikado type, you know that before the fireman would get to the end of the division, he would be worn out. It would either mean two firemen or a stoker."

You don't agree with that on the Rock Island, do you?

Mr. Tollerton: No.

Mr. Carter: Now, we will turn to the Master Mechanics' Association, meeting of 1912. Here is a report of a committee. Let us see who this committee is. The chairman of the committee is a gentleman by the name of T. Rumney. Do you know him?

Mr. Tollerton: Very well.

Mr. Carter: He is the Second Vice-President of the Rock Island Road.

Mr. Tollerton: Was.

Mr. Carter: Was, I mean. You think anything he said on the subject would not be exaggerated in favor of the firemen?

Mr. Tollerton: I do not think he is capable of speaking for the firemen on the Rock Island Road.

Mr. Carter: Mr. Rumney says; or rather his report says —he is chairman of the Committee:

"When three or four years ago the necessity for passenger locomotives and freight locomotives of still greater capacity than those already in service became apparent, they were not generally considered possible without some device to assist in handling the increased quantity of fuel which it was thought these engines would require."

He had not taken that test at that time he said that, had he?

Mr. Tollerton: What is the date of that?

Mr. Carter: 1912.

Mr. Tollerton: Mr. Romney was on the Erie, in 1912.

Mr. Carter: He had left the Rock Island?

Mr. Tollerton: No, he had not come.

Mr. Carter: He had not come. Do you think he has changed his opinion since he came?

Mr. Tollerton: I do not know. He was not with the Rock Island long enough.

Mr. Carter: If he had seen Exhibit 35, he might have changed it, mightn't he?

Now, the committee report goes on to say:

"As the greater sustained tractive efforts of the large engine equipped with superheaters and brick arches is gradually taken advantage of, its fuel consumption per hour will increase, though decreasing on the ton-mile basis, with the eventual result of possibly making necessary to some extent means, in addition

to those already provided, to supply fuel to the engine up to its maximum requirements."

Now, I want to see who was on that committee with Mr. Romney; to see if it was just because he had a tender spot in his heart that he said that. Now, with Mr. Romney was E. P. Nelson, Engineer of Tests on the Pennsylvania Railroad; Mr. C. E. Gossett, Master Mechanic on the Minneapolis & St. Louis; Mr. J. A. Carney, Superintendent of Shops of the C. B. & Q.; Mr. T. O. Sechrist, Master Mechanic of the C. N. O. & T. P.; Mr. S. K. Dickinson, Assistant Superintendent of Motive Power, on the Lake Shore & Michigan Southern; and Mr. George Hodgins, who—I don't know what he was. Do you know Mr. Hodgins?

Now, those gentlemen, without any solicitation on the part of the firemen, and when an arbitration was not pending, said:

"As the greater sustained tractive efforts of the large engine equipped with superheaters and brick arches is gradually taken advantage of, its fuel consumption per hour will increase, though decreasing on the ton-mile basis, with the eventual result of possibly making necessary to some extent means, in addition to those already provided, to supply fuel to the engine up to its maximum requirements."

You don't agree with those gentlemen, do you?

Mr. Tollerton: Yes, I do, but you understand that refers to speed entirely, and when a fireman is making speed he is also increasing his earning capacity.

Mr. Carter: I will have to look that up. There was nothing said about speed here.

Mr. Tollerton: Speed is what is referred to in that article.

Mr. Carter: Just pardon me for the delay. I do not think the words "passenger service," are used in here, nor "speed" either. There is no reference at all to any special class of trains, or any special speed.

Mr. Tollerton: That is what the man was talking of, or writing of, when he wrote the article.

Mr. Carter: I am afraid, gentlemen, that anything anybody says is turned against us in an arbitration.

Now, there is nothing said in the article about speed, or passenger trains, or freight trains.

Mr. Shea: Mr. Carter, I would like to ask Mr. Tollerton a question.

Mr. Carter: Surely; go ahead.

Mr. Shea: Upon what do you base that opinion, that it was referring to speed?

Mr. Tollerton: Entirely on the fact that tractive power, whether superheated or not, was not increased at the starting point.

Mr. Shea: Well, what I mean, Mr. Tollerton, is, does that article state that?

Mr. Tollerton: On the reading of the article, which says that tractive effort will be maintained.

Mr. Shea: At what speed, Mr. Tollerton?

Mr. Tollerton: He must mean speed. Well, with a superheated and saturated engine, I think that the influence is felt at about thirty miles an hour.

Mr. Carter: How fast does a freight train run, according to Mr. Keefe's table?

Mr. Tollerton: Well, I was speaking of a passenger engine when I referred to this speed basis. Your improvement is not as apparent in speed on a freight engine, because you don't get the speed in ordinary operation.

Mr. Carter: Please glance at the article, and see if it makes any reference as to speed or class of service.

Mr. Tollerton: It says: "As the greater sustained tractive efforts." That can only be brought about by speed.

Mr. Carter: If you have a powerful locomotive, running twelve miles an hour, with all the engine can pull, and keep up that speed, is not that a sustained tractive effort?

Mr. Tollerton: At that speed, yes.

Mr. Carter: Mr. Chairman, I want to submit that report of the Master Mechanics' Convention as being a true statement of facts.

Well, I won't read any more. I have got lots of it. I will pass on.

When this fireman isn't supplying coal to the fire box, I understand that he is either standing in the gangway or riding on the seat box, according to this table.

Mr. Tollerton: No, that is not quite true. Which table do you refer to?

Mr. Carter: Any of them. Take the first one.

Mr. Tollerton: The first one shows that he was 19 per cent of his time on duty supplying coal to the fire box, while he was 31 per cent of his time, or a difference of 12 per cent, performing other duties.

Mr. Carter: Well, what per cent was he doing nothing?

Mr. Tollerton: 69 per cent, according to this table.

Mr. Carter: 69 per cent of this time he was doing nothing. Is that right?

Mr. Tollerton: That is what the table shows.

Mr. Carter: Have you a book of rules of the Rock Island Road there?

Mr. Tollerton: No, sir.

Mr. Carter: If I read certain rules will you recognize them as I read them?

Mr. Tollerton: That is doubtful. I am not an operating officer, and I am not entirely familiar with operating rules. I will answer any question on mechanical matters, but there will be other witnesses put on that you can ask any question regarding operation you please.

Mr. Carter: I may not be here, Mr. Tollerton. Will you answer the questions while I am here?

Mr. Tollerton: I could not put myself up as being capable of answering all operating questions.

Mr. Carter: Where it says, "Duties of a fireman," would you not know something about that? I will pass all the rest.

Mr. Tollerton: I would have to hear the question.

Mr. Carter: Rule 731 of the Rock Island Rules and Regulations of its operating department:

"Firemen. 731. The Fireman reports to the Road Foreman of Equipment. He must obey the orders of the Train Master in matters relating to the movement and protection of trains. When at the engine house he is under the direction of the Engine House Foreman. When with the engine the Fireman must obey the orders of the Engineman respecting the performance of his duties.

"He shall fire his engine properly with due regard to economy in fuel.

"The Fireman must report for duty at the appointed time; see that he has the proper tools and supplies; assist in shifting

and making up the train when required; assist the Engineman in keeping a lookout for signals and obstructions; observe and communicate to the Engineman the indications of all signals at interlockings, draw bridges, junctions and train order offices; and, at unprotected railroad crossings at grade, whether it is safe to proceed; take charge of the Engine during the absence of the Engineman, and assist in making repairs when required. He must not run an engine, unless in some emergency he is directed to do so by the Conductor or someone in authority. He must be familiar with the train rules and be prepared to use signals promptly when necessary for protection.

"He must protect the front of the train when necessary."

Rule 730 says, among other things (and I am putting three stars ahead of what I am going to say); some place it says that he must read his orders to the fireman. Which would indicate that the fireman must have some regard for the train orders.

All of that being true, Mr. Tollerton, don't you think the fireman has plenty to do besides the 1 hour and 42 minutes that he was shoveling coal at the rate of 170 pounds a minute?

Mr. Tollerton: You understand, Mr. Carter, that I don't wish to indicate to this Board that 69 per cent of the fireman's time he is asleep. That is not the intention of the exhibit.

Mr. Carter: I will read what you said, Mr. Tollerton:

"Mr. Byram: What was he doing when he was not performing these manual labors?

"Mr. Tollerton: He was either standing at ease in the gangway or riding on the seat box."

Mr. Tollerton: That is true. I have no reason to change that answer today.

Mr. Carter: Have you, without getting the direct information, any idea of about how many block signals have been installed on the Rock Island Road since 1910?

Mr. Tollerton: No, sir.

Mr. Carter: This rule required this fireman to watch these block signals, did it not, that I read?

Mr. Tollerton: That is one of the duties, where the signal is on his side.

Mr. Carter: I find that the Railway Age Gazette of January 1, 1915 (that is only about a month ago), says on page 29:

"Number of miles of block signals on the Chicago, Rock Island & Pacific Railway in 1914 and 1915."

That only goes back one year, to 1914. That does not go back to 1910. "Total automatic signals in 1914, 941; in 1915, 974."

Mr. Tollerton: It shows that we are improving our railroad.

Mr. Carter: More signals for the firemen to help the engineer watch?

Mr. Tollerton: No, decreasing his hazard.

Mr. Carter: Then all he has got to do is to not watch the signals.

Mr. Tollerton: Sir?

Mr. Carter: He doesn't have to watch the signals?

Mr. Tollerton: No. I think the installation of block signals decreases the hazard of the engineer and fireman.

Mr. Carter: Aside from the hazard, Mr. Tollerton, has anything decreased the responsibility of the engineers and fireman more than the installation of block signals?

Mr. Tollerton: I could not answer that.

Mr. Carter: That is all.

Mr. Stone: I would like to ask him a question or two before you put on another one.

Mr. Tollerton: I am still figuring on that Table No. 1 of yours, and I do not get quite the same computation that Mr. Carter does.

Mr. Carter: Maybe mine are wrong. They have been checked.

Mr. Stone: I cannot figure it out so many pounds of coal per minute. If I understand your exhibit correctly, he shoveled this entire amount of coal in that many actual working minutes. Am I right or not?

Mr. Tollerton: He shovels that much coal in the amount of fractions of minutes, throughout the entire period of his time. We will say, as an illustration, that he puts in one fire approximately six scoops of coal and it requires a half a minute to do it. Now, the number of fires over the trip were added together, the time of doing the work is added together and brings about the result.

Mr. Stone: Well, then, does it not come back to the same old thing, the actual minutes he was working?

Mr. Tollerton: Mr. Stone, that would not be quite a fair illustration, because it is stretched over this period of 8 hours and 47 minutes.

Mr. Stone: Of course, we would not agree on that, but the fact remains that he did not shovel any coal, only when he was putting coal into the fire box. Is not that true?

Mr. Tollerton: That is true.

Mr. Stone: Then, in this Table No. 1, in the 1 hour and 42 minutes that he shoveled the 8.67 tons of coal, he shoveled at the rate of a little over 10,000 pounds of coal per hour; and yet, you testified yesterday that a man could not shovel over five or six thousand pounds of coal per hour.

Mr. Tollerton: Of course, if he shoveled it all in 1 hour and 42 minutes, that would be true, but that was not the exact facts in the case. He shoveled the coal, stretched over a period of 8 hours and 47 minutes.

Mr. Stone: Then your hour and 42 minutes actual working time does not mean anything?

Mr. Tollerton: Did I say 47? It ought to have been 42. It is exactly the length of time he was engaged in doing the work.

Mr. Stone: Well, then, he shoveled the coal in, in that much time, did he not?

Mr. Tollerton: Stretched over that period, yes.

Mr. Stone: The other day, in discussing time on a work train, Mr. Park made the statement that it took a man, coaling up an engine tank, several hours to coal up the tank at the end of a day's work, but here you are going to have a man almost empty a tank in an hour and 42 minutes. Now, is it a fair proposition to bring in the statement and make the claim that a man actually works only that time, and the rest of the time he is either standing in the gangway or riding at ease, and then when we come down to a computation in the case, you say it is stretched out?

Mr. Tollerton: It is stretched over the entire period.

Mr. Stone: But that does not change the basic principle a particle, if he only shoveled in coal when he was working, does it?

Mr. Tollerton: Of course, the time consumed in doing the work was added together and brought about this result.

Mr. Stone: Simply another illustration of what can be done with figures?

Mr. Tollerton: No, I would not say so. I think it is an exact indication of the work performed.

The Chairman: Well, this man shoveled coal at intervals, as I understand, and you take the length of each interval during which he was shoveling coal, and add those together, and you get an hour and how much?

Mr. Stone: An hour and 42 minutes, on Table No. 1.

Mr. Tollerton: An hour and 42 minutes.

The Chairman: The fact that he shoveled at intervals would not affect the time in which he shoveled the coal, would it? It would not affect the time consumed in shoveling coal?

Mr. Tollerton: Not if done steadily.

Mr. Stone: That is all I am trying to have him say. I have not been able to get him to say it yet.

Mr. Sheean: Do you mean that if a man runs 100 yards in 10 seconds, that he ought to run at that speed per hour—the same rate of speed per hour? That when you say a man makes 100 yards in 10 seconds, that you thereby determine his speed per hour?

Mr. Stone: No, sir. You struck the very thing that I wanted to bring out.

Mr. Sheean: I thought you were endeavoring to get Mr. Tollerton to give assent to that proposition, and he had repeatedly stated to you that these were intervals, shoveling 30 seconds at a time, and in such 30 second intervals, if all added together and spread out over a period of this time, there was this amount of coal shoveled.

Mr. Stone: Mr. Chairman, if the table means anything, it means that many minutes is all the man worked in his working day.

The Chairman: That is what I am trying to find out. I want to know for my own information, because we are to pass upon this fact, I imagine. So, according to your statement, an hour and 42 minutes was the time occupied in putting the coal into the engine?

Mr. Tollerton: That is the total time computed over the period.

The Chairman: I understand, over the period. That is at intervals. Now, here is a period and here is a period. Now, he is shoveling. Now, that represents the sum total of the active labor that he performs, as I understand it.

Mr. Tollerton: Yes, sir.

The Chairman: Therefore, how could you estimate as to the amount of coal he shoveled in an hour, other than to take the number of hours or minutes in which he was engaged in shoveling coal? That is what I mean.

Mr. Tollerton: These additions were made in that way, but Mr. Stone's illustrations—he is bringing about an unfair amount of coal to be shoveled during a given period.

The Chairman: I am paying no attention to illustrations. I simply want to get the cold facts. I have not thought about the illustration. I simply wish to be satisfied in my mind as to the cold facts.

Mr. Tollerton: The time consumed by the fireman in putting in one fire, six scoops, the time getting off the seat box, putting in the fire, setting his shovel away, getting back on the seat box, was checked with a stop-watch. The number of fires that he put in on the trip was checked with a counter. Those two were added together and brought about this result.

The Chairman: Let me put it in a different way. Now, you want the Board to infer from this testimony, I imagine, that he only performed an hour and 42 minutes actual service. That is to say, he performed it at intervals as you say, but still that is the only time he was actually working. That is what you want to infer, is it not?

Mr. Tollerton: No, that is right, to the extent that that was the time he was actually engaged in supplying coal to the fire box. His other physical duties took up an additional 12 per cent, making 31 per cent of his time working.

The Chairman: In other words, you want us to infer from this table that 69 per cent of his time was not occupied?

Mr. Tollerton: In performing physical labor.

Mr. Burgess: And when he was not performing physical labor, in accordance with your interpretation yesterday, he was

either standing at ease in the gangway or sitting on the seat box?

Mr. Tollerton: Yes, sir, according to the reports.

Mr. Sheean: And on duty and under pay all the time.

Mr. Tollerton: On duty and under pay all the time.

Mr. Sheean: The sole purpose of these tables being to ascertain whether the physical labor, spread over this period of time, which, as claimed by this proposal, reached the limit of human endurance, as has been so frequently put.

Mr. Tollerton: Yes.

The Chairman: I did not mean to interrupt you, Mr. Stone.

Mr. Sheean: Neither did I.

Mr. Stone: It is all right.

Mr. Burgess: Are we to consider the statements of the counsel as governing your testimony of yesterday, wherein you did not add on duty all the time, but, rather, you stated that it was quite probable that the fireman could be advised on the Rock Island that he was entitled to six hours and five minutes, out of a total spread of eight hours and 47 minutes.

Mr. Tollerton: As I have said before, repeatedly, during my testimony, I do not wish the Board to infer that I don't consider our locomotive engineers and firemen as working all the time, trying to give a sincere day's work for the pay received. There was a request made here to put two locomotive firemen on coal burning engines of a certain weight. These tables were gotten up to show that the work at the present time, on these coal burning engines, is not beyond the capacity of one fireman to do. We do not desire to take the fireman, now on the locomotive, off. We do not desire to reduce his pay, because these tables show that he only works one-third of his time. We do not wish to do that. The object of the table is just what I have said.

Mr. Burgess: Mr. Tollerton, I think we should understand one another correctly—that is the Board and your testimony. The trouble, at least, with one member of the Board is, that he cannot reconcile this table with your statements. Now, you have said two or three different times today that you wanted it distinctly understood, or words to this effect, that the engi-

neers and firemen were working all the time while on duty, practically.

Mr. Tollerton: The fireman is not asleep during this period.

Mr. Burgess: You have stated, if I remember correctly, Mr. Tollerton, that he was sincerely working, I think you used—

Mr. Tollerton: I think he is giving attention to his duties.

Mr. Burgess: And then when asked this question yesterday: "And so inasmuch as it is an exact calculation, that would seem to warrant the assumption that these firemen could be advised that it was the opinion of the mechanical head, that they were entitled to 6 hours and 5 minutes, in every 8 hours and 47 minutes, providing they took this rest intermittently.

"Mr. Tollerton: I think that is entirely probable."

Mr. Tollerton: They are getting it now, according to this calculation.

Mr. Burgess: Yes. But, Mr. Tollerton, the fact of the matter is your testimony today was that you thought that they were working all the time, and very busy.

Mr. Tollerton: They are on duty all the time, and under pay all the time, but they are only performing physical labor the proportion of the time quoted in the table.

Mr. Burgess: But there was no statement yesterday in regard to the physical labor. In fact, you gave assent to the fact that they were entitled to 6 hours and 5 minutes, out of every 8 hours and 47 minutes, at rest, and you defined the difference between physical labor and rest, or, rather, you defined rest for me as either sitting on the seat box, or standing at ease in the gangway.

Mr. Tollerton: Performing no physical labor.

Mr. Burgess: Performing no physical labor. What we are trying to do, Mr. Tollerton, at least that is what my intent is, is to reconcile this statement with your statement today and this table; that is all.

Mr. Tollerton: If I can make myself any more clear, Mr. Burgess, I will be very glad to do it.

Mr. Stone: Mr. Tollerton, you will agree, however, will you not, that it would be a physical impossibility for a man to shovel coal at a rate that would be necessary to handle 8.67 tons

in an hour and 42 minutes if he had to do it continuously, straight ahead?

Mr. Tollerton: No, that is within the capacity of a man to handle coal, for a single hour.

Mr. Stone: A little over 10,000 pounds an hour.

Mr. Tollerton: That is five tons, is it not?

Mr. Stone: Yes.

Mr. Tollerton: As I explained yesterday, a ton of coal is about three feet and a half each way. I think it is entirely within the capacity of a man to take a scoop and move that small pile of coal, from one point to another, in eight minutes. I could do it. Any one in this room could do it, but that is one ton of coal. I do not wish to say that he could keep that speed up indefinitely. It is like the hundred yard runner. He trains for months, because he has got to make this 100 yards in 9 seconds. If he had 9 minutes to do it in, he wouldn't have to train at all.

Mr. Stone: Well, coming back to that trip that you made yesterday for the Chairman. The Chairman asked you how often a fireman put in coal in a firebox, and after finally agreeing it was to be at a speed of 20 miles per hour, on level track, you said a fire every ten minutes, and when asked the number of scoops you included in the fire, you said six or seven. Figuring it at seven scoopfulls to the fire, that would be 105 pounds of coal he puts in each fire, and putting in a fire every ten minutes, he would put in six fires in an hour. In running 100 miles, at 20 miles an hour, he would get over the road in five hours. Therefore, he would put in 30 fires in that time. Or, in other words, he has put in 3,050 pounds of coal, or a ton and a half, to get a tonnage train over the road 100 miles. Do you think those figures are consistent?

Mr. Tollerton: I answered Mr. Burgess' question along the same lines yesterday, and when I made a figure, I found I had to qualify as to the length of time between fires, and so told Mr. Burgess.

Mr. Stone: You said now it might be 8 minutes?

Mr. Tollerton: I told Mr. Burgess, I think.

Mr. Burgess: Yes, it is here in the minutes.

Mr. Stone: All right. We will make it 8 fires to the hour —make it 40. He burned two tons of coal.

Mr. Tollerton: On the basis of these figures here, the fireman was putting in a fire more often than that.

Mr. Stone: On these tables—in Table 3 and Table 4, Mr. Tollerton, showing the number of trips between the saturated and the superheated steam engines, are we to understand it was the same tonnage on each road?

Mr. Tollerton: Oh, no. No comparability in any way, except weight on drivers.

Mr. Stone: What is the reason, all the way through, that your superheaters do not show the 30 per cent saving in coal?

Mr. Tollerton: For the reasons, as explained, that the tests were on different railroads, under different working conditions, nothing being similar. Where the tests were made on the same railroad, as given in my testimony of yesterday, 30 per cent economy was shown.

Mr. Shea: Mr. Tollerton, will that be shown in this data that you are furnishing us? This data will show each trip separately?

Mr. Tollerton: Where I have made the comparisons in single trips, yes.

Mr. Shea: Well, does this include the reports from the different roads?

Mr. Tollerton: Everything that we have.

Mr. Shea: Shows the engine and number of the train, name of the engineer and name of the fireman?

Mr. Tollerton: Tons in train, yes, everything.

Mr. Stone: Do you know of any roads in the Western territory, where they scoop water, in running?

Mr. Tollerton: No, I don't.

Mr. Stone: I notice, in reading your testimony yesterday, you spoke of some roads that scooped their water, or did not stop for water. There are no roads west of Chicago that scoop water, that you know of?

Mr. Tollerton: No.

Mr. Stone: Well, I am still worried about that fireman shoveling that coal in an hour and 42 minutes, but I guess we will have to drop the question. I think that is all, Mr. Chairman.

Mr. Burgess: Can I ask one question?

Mr. Sheean: Surely.

Mr. Burgess: Mr. Tollerton, I am quite interested in this superheater. I do not know very much about it. I would like to ask you if I understood you correctly, to state in answer to Mr. Carter's question, that if the superheater failed on the road, that the crew would set the train off and go in light. Did you mean to go in with the light engine?

Mr. Tollerton: If the defect was as illustrated by Mr. Carter's example, I would say that that would be the proceeding. The engine would fall so far in efficiency that it would be unable to handle its train.

Mr. Burgess: Well, as I understand his illustration, the defect was total abolition of the superheater feature. In other words, by the accident, transforming the superheater engine into a saturated engine.

Mr. Tollerton: Yes, sir.

Mr. Burgess: Under those circumstances, it would be entirely proper for the engineer to set the train off and go in light?

Mr. Tollerton: I would think that that would be the proper proceeding. Of course, circumstances and conditions would govern. If he was approaching his terminal, on a down hill movement, he would probably drift in with his train, because he would have steam enough to operate his air.

Mr. Burgess: Now, if he was on a level piece of track, or if he were on a piece of track that was not level, but still not a decline into the terminal—in other words, if he had to work steam to get the train in, you think an engineer would be perfectly justified in setting his train off and going in light? Is that right?

Mr. Tollerton: He would have to set all or part of it off.

Mr. Burgess: But he would not be expected to attempt to pull his full train in, under the circumstances?

Mr. Tollerton: In my judgment, he could not.

Mr. Burgess: Thank you.

Mr. Stone: Mr. Tollerton, I should like to ask you one more question, please. Is it not a fact that almost every week you have a report of some superheater falling down on steam, due to leaky headers or something of that kind?

Mr. Tollerton: No, that is not true.

Mr. Stone: Don't they honeycomb over and stop up so that they do not get the benefit of the superheater?

Mr. Tollerton: No; with certain qualities of coal, that is brought about to some extent, but as mentioned in my testimony yesterday we have special forces whose duty it is to look after the deficiency of the superheaters.

Mr. Stone: But that is only at the terminals?

Mr. Tollerton: Oh, no; terminals and on the road.

Mr. Stone: Do you have men that ride these engines in addition to the engine crews, to look after their efficiency?

Mr. Tollerton: Yes, sir.

Mr. Stone: What are they, road foremen of engines?

Mr. Tollerton: Road foremen of engines and supervisors of locomotive operation. They are all locomotive engineers.

Mr. Stone: Do they clean the honeycomb off the flue sheet?

Mr. Tollerton: They would, if it became necessary, but I never heard when it was necessary.

Mr. Stone: Then you do not agree with these other authorities we have filed in our Exhibit 51, in regard to the care that the superheater takes, and how necessary it is to clean those off, every trip?

Mr. Tollerton: I think every appliance on a modern locomotive requires care, whether it is the superheater or anything else.

Mr. Stone: If you were building a modern office building today, would you put in telephones, and electric lights, and elevators and plumbing, or would you build it like we used to thirty years ago?

Mr. Tollerton: I don't expect to build a modern office building.

Mr. Stone: If I get your theory correctly, all these improvements have been put on for the benefit of the men. There is only one important thing, I think, you overlooked, that you did not charge to the refinements. I think you fail to mention the smoke stack. I don't think you charged that to the engineers and firemen.

Mr. Tollerton: No. The smoke stack has been there for a long time.

Mr. Stone: That is all, Mr. Chairman.

RE-DIRECT EXAMINATION.

Mr. Sheean: Mr. Tollerton, after having stated your position so many times, as to savings in labor of men, concurrently resulting in economies for the company, do you wish, by your silence at the time of this last statement of Mr. Stone's, to give assent to the statement made? It did not call for any reply. You made no reply.

Mr. Tollerton: I did not get that.

Mr. Sheean: Will you just read the statement made by Mr. Stone, which appears now, as I got it, as a statement, but might possibly be a question? Will you read it, please?

(Statement by Mr. Stone read as above recorded.)

Mr. Tollerton: If that requires any additional answer, I think my testimony of today and yesterday has been made perfectly clear. These refinements mentioned do decrease the labor of the engineer and fireman.

Mr. Sheean: As to this problem in mathematics, about which there seems to have been some discussion, Mr. Carter has analyzed the statements as showing that, considering them all together, it shows that the fireman shoveled 178 pounds of coal in a minute, and then was permitted to rest for 4 minutes. But I understand your statement to be that the shoveling of 178 pounds of coal, per minute, in a single minute, is not unreasonable?

Mr. Tollerton: I so made that statement.

Mr. Shean: That would be twelve scoops of coal in a minute's time?

Mr. Tollerton: Yes.

Mr. Sheean: And if a reasonable opportunity for rest followed, do you think it a not unreasonable burden?

Mr. Tollerton: Oh, no. It is entirely within the capacity of the fireman.

Mr. Sheean: And you have not attempted to indicate, by any table here submitted, that this rate could be maintained throughout a ten hour period, or was maintained, reducing it to the minute basis?

Mr. Tollerton: No.

Mr. Sheean: Has there been any complaint made to you, Mr. Tollerton, on the part of the engineers and firemen, because of the installation of block signals on the Rock Island?

Mr. Tollerton: I never heard of any.

Mr. Sheean: Or any suggestions to you that their burdens and responsibilities were being increased, by the installation of block signals, until you heard it here today?

Mr. Tollerton: No, sir.

Mr. Sheean: Now, you called my attention at the noon hour, Mr. Tollerton, to the fact that there were some typographical errors in your testimony of yesterday. Do you wish to make those corrections?

Mr. Tollerton: I would like to correct, on page 4229, in fifth paragraph, where the words "hand fire" appear in the second line, and "coal fire" in the third line, the letter "d" should be added, making it "hand fired" and "coal fired."

In the next paragraph, the proper name, "Mr. Folk" appears. It is spelled F-o-l-k. It should be F-o-q-u-e.

On page 4235, I notice, in reading over my testimony, that the added weight on drivers in the application of a superheater, appears to be, at different times, 4,000 pounds or 5,000 pounds. I wish to make this clear statement: that the application of a superheater to a Consolidation engine will add approximately 4,000 pounds on the drivers. With the addition of an arch, an additional thousand pounds is added. So that on a Consolidation engine that receives a superheater and a brick arch, approximately 5,000 pounds will be added to the weight on drivers. On smaller locomotives there will be a slight decrease in the weight.

On page 4239, down in the last paragraph on that page, occur the words "trial fuel;" it should be "trial few."

On page 4249, in the middle of the page, it reads: "To hook an engine on;" it should read "to hook an engine up."

On page 4257, in the third paragraph, it reads: "Wedge blade;" it should read "Wedge bolt."

Page 4261, I notice—this is a correction in your statement, Mr. Sheean—the word "engineman" is used, where it says "Roundhouse shop force or an engineman."

Mr. Sheean: That should be "engine watchman."

Mr. Tollerton: Yes, it should be "engine watchman."

On page 4268, toward the bottom of the page, it reads: "main effective boiler pressure." It should read: "mean effective boiler pressure."

On the same page, further down, it reads: "every other proposition being identical." It should read: "every other proportion being identical."

On page 4284, the middle of the page, "These were of a series of which we have a great number, radically the same"; it should read "practically the same."

On page 4285, towards the bottom of the page, it reads: "But these engines with the reduction in work in the fireman"; it should read "of the fireman."

Page 4286, at the bottom of the page, it reads: "Also between Allerton and Leavenworth." It should read, "between Altamont and Leavenworth."

On page 4290, it reads: "It shows an average total time on duty of 9 hours and 35 minutes." It should be, "39 minutes."

That is all.

Mr. Sheean: That is all.

Mr. Stone: One more correction, before we adjourn, Mr. Chairman.

Mr. Shea: While we are making corrections, turn to page 4,304, where it says Mr. Shea asked a question. I think that was Mr. Sheean instead of Mr. Shea.

Mr. Sheean: I am willing that either you should take it or leave it. I do not remember which it is.

Mr. Shea: I think it belongs to you, because I did not ask that kind of a question.

Mr. Stone: On page 4,259 there is a correction to be made by Mr. Burgess. I am sure he did not use the language that appears there. It is on page 4,259 of yesterday's proceedings. Mr. Burgess, will you turn to that page and make the correction? It is in the third paragraph from the top of the page, the last word in the paragraph.

Mr. Burgess: On page 4,259, yes. That correction, Mr. Chairman, was relative to an engine being placed over the pit; it should read "pit" instead of "pip."

Mr. Sheean: Is there anything more that you wanted to ask, Mr. Tollerton?

Mr. Stone: Nothing more.

The Chairman: Mr. Nagel wishes to ask a few questions.

Mr. Nagel: Did you not say yesterday, Mr. Tollerton, that heavy tonnage cannot be carried in the Western territory to

economical advantage, because the heavy season goes in one direction?

Mr. Tollerton: No. I do not think I used that exact language, Mr. Nagel: What I meant to infer was that throughout the West, the traffic, during many months of the year, is so thin and in such an unbalanced condition, that it is impracticable to get a full tonnage for the locomotive, and many of the large engines that are running in Western territory, and carrying a high rate of pay for both the engineer and fireman, are not maintained to maximum tonnage, because the tonnage is not here.

Mr. Nagel: I got the impression that you referred also to the fact that the traffic goes in one direction, and the return train carries empties.

Mr. Sheean: You used the word "unbalanced." Explain what you meant, Mr. Tollerton.

Mr. Tollerton: That is true. That is exactly what I meant, Mr. Nagel.

Mr. Nagel: I thought that might account for the difference in your testimony and Mr. Keefe's, to which reference was made today—although I do not remember Mr. Keefe's testimony on that point.

One more question: It is your position, is it not, Mr. Tollerton, that all the devices to which you have referred, in some measure have relieved the labor or responsibility of the engineers and firemen?

Mr. Tollerton: Yes, sir.

Mr. Nagel: You do not deny that many of the improvements were made for the immediate benefit of the road?

Mr. Tollerton: The road receives a benefit from them, in conjunction with the engineers and firemen.

Mr. Nagel: Sometimes indirectly, through the better conditions created for the men?

Mr. Tollerton: Yes, sir.

Mr. Nagel: But you insist that in all cases the engineers and firemen have received relief in some measure?

Mr. Tollerton: Yes, sir.

Mr. Nagel: Is it your impression, as a practical railroad man, that that contention is disputed by the engineers and firemen?

Mr. Tollerton: I think that our locomotive engineers and

firemen appreciate all of these improvements, and that it lightens their work.

Mr. Nagel: In other words, they would not prefer to go back to the old conditions?

Mr. Tollerton: Oh, no, not at all.

Mr. Nagel: That is your judgment?

Mr. Tollerton: Yes, sir.

Mr. Nagel: One more question, with reference to this Demand 14. Do you think that the firemen and engineers object to doing the work specified in that article, or do you think they merely object to doing the work without a corresponding allowance of time.

Mr. Tollerton: My contention as to that article is that the railroads now have relieved the engineer of a number of these duties. There are short runs and small engines where the present engineer and fireman receive the maximum day for possibly three hours' work. Under those conditions I do not think it unreasonable of the railroad company to ask the engineer and fireman to perform those duties without extra compensation.

Mr. Nagel: That was not my question, so much. I wanted to know whether the engineers objected to the work itself, or objected to doing it without an allowance of time.

Mr. Tollerton: I have never heard that question brought up in that way.

Mr. Nagel: I suppose we will hear about that later, then. That is all.

The Chairman: Is there anything further, gentlemen?

Mr. Sheean: That is all.

Mr. Stone: That is all.

The Chairman: We will take an adjournment, then, until 10 o'clock Monday morning.

(Whereupon, at 5 o'clock P. M., February 5, 1915, an adjournment was taken to February 8, 1915, at 10 o'clock A. M.)

IN THE MATTER OF THE
ARBITRATION
between the
WESTERN RAILWAYS
and
BROTHERHOOD OF LOCOMOTIVE ENGINEERS
and
BROTHERHOOD OF LOCOMOTIVE FIREMEN AND ENGINEMEN
under the Act approved July 15, 1913, by agreement dated August 3, 1914.

Chicago, Illinois, February 8, 1915.

Met pursuant to adjournment at 10:00 o'clock A. M.

Present: Arbitrators and parties as before.

Mr. Carter: Mr. Chairman, I would like to make one correction which I believe is highly important. On page 4414 at the middle of the page I quote as follows:

"Mr. Carter: Aside from the hazard, Mr. Tollerton, has anything decreased the responsibility of the engineers and fireman more than the installation of block signals?"

That should be:

"Mr. Carter: Aside from the hazard, Mr. Tollerton, has anything increased the responsibility of the engineers and firemen more than the installation of block signals?"

Mr. Sheean: If the Board please, I have prepared a tentative agreement covering the matter of extending time, without signatures; it has been submitted to the other side and they suggest that we submit it to the Board. (Handing paper to the Chairman.)

The Chairman: We will take it under advisement.

Mr. Sheean: Yes; we ask that you take it under advisement, both as to form and substance, and we will execute it with such modifications as the Board may think advisable.

The Chairman: Very well; we will look it over.

We will call Mr. Hewitt.

RUDOLPH E. HEWITT was called as a witness, and having been duly sworn, testified as follows:

DIRECT EXAMINATION.

Mr. Sheean: You have given your full name to the stenographer, Mr. Hewitt?

Mr. Hewitt: Yes, sir.

Mr. Sheean: What is your present occupation?

Mr. Hewitt: Master Mechanic of the Oakland, Alameda & Berkeley Electric Lines of the Southern Pacific Company, California.

Mr. Sheean: Will you describe briefly just where those electric lines are and how they operate—between what points?

Mr. Hewitt: These lines radiate from Oakland and Alameda piers into the cities of Alameda, Oakland and Berkeley, and are used principally to carry the passenger in suburban service that use the ferries to San Francisco.

Mr. Sheean: And about what is the longest one of the single runs in that electric service?

Mr. Hewitt: The longest run at the present time is about fifteen miles.

Mr. Sheean: That is exclusively a passenger service, is it?

Mr. Hewitt: Passenger service only, yes, sir.

Mr. Sheean: In a general way, Mr. Hewitt, what has been your experience as a railroad man?

Mr. Hewitt: Well, I started in 1885 as an engine wiper, at which I worked for one year. Then I was two years a fireman. In the spring of 1888 I went to work for the New York and Brooklyn Bridge, that is the trustees of the New York and Brooklyn Bridge, at that time the only structure across the East River.

Mr. Sheean: What kind of power was operated there?

Mr. Hewitt: At that time it was a cable railway. Steam locomotives were used for shunting the trains from incoming to outgoing platforms at both terminals. I spent ten years on the structure, and while there, in 1895, the first heavy electric traction equipment that was ever used in Greater New York was installed on the bridge to replace the steam locomotives.

Mr. Sheean: Subsequent to that time, did you have any

other experience with electric locomotives or electric motive power?

Mr. Hewitt: Not prior to 1895.

Mr. Sheean: After that? Subsequently?

Mr. Hewitt: After that, yes, sir. In 1898, the bridge was virtually leased to what is now known as the Brooklyn Rapid Transit Company and they then began to electrify all the elevated railways in the city of Brooklyn. These trains of the elevated roads supplanted the cable cars on the bridge, and ran through to New York, to Park Row station. With the introduction of electricity on these lines, it was my duty to instruct all the engineers in the service, as to the proper handling of the electric equipment.

Mr. Sheean: Those who had operated the steam locomotives before that time were educated in the use of the electric power that was substituted, were they?

Mr. Hewitt: Yes, sir.

Mr. Sheean: Did you have any experience with the New York Central Railroad, during the change of part of its motive power from steam to electricity?

Mr. Hewitt: Yes, sir; I entered the employ of the New York Central in the year 1906, and remained there for five years; and my position was that of instructor on electric equipment.

Mr. Sheean: And during that time, what part of the New York Central Lines were changed to electric motive power?

Mr. Hewitt: They electrified the Harlem Division, from Grand Central terminal to North White Plains, and the Hudson Division from Grand Central Terminal to Croton on the Hudson, although the Hudson division was not fully electrified when I left their service, but it has been since that time.

Mr. Sheean: Then when did you come to the Southern Pacific?

Mr. Hewitt: In the spring of 1911.

Mr. Sheean: Was that about the time that this suburban service of the Southern Pacific was changed from steam to electricity?

Mr. Hewitt: Yes, sir; they started to operate their first electric trains in the month of June of that year.

Mr. Sheean: The engineers who had operated in that suburban service before, were educated in the use of electric power?

Mr. Hewitt: Yes, sir; the engineer that had formerly operated the steam locomotives in the territory covered, qualified as engineers in electric service.

Mr. Sheean: What were your duties with the New York Central?

Mr. Hewitt: Instructor on electric equipment.

Mr. Sheean: During the time you were with them, did you have charge of the instructing of those who were to take charge of the electric power?

Mr. Hewitt: Yes, sir, I did.

Mr. Sheean: What is the method on the Southern Pacific of qualifying the men for this electric service?

Mr. Hewitt: When an engineer presents himself with the proper credentials, signed by the superintendent or his assistant, that indicates that he is a fully qualified man as regards the book of rules of the company, signals, and so forth, we take him in hand and for about two days we lecture to him. The third and fourth day is usually taken up in taking the man over the equipment and giving him practical demonstrations, and the average man manages in about a week's time to fully qualify for electric service.

Mr. Sheean: That is, when you speak of coming to you with a letter or certificate, by that you mean that you have nothing to do with the qualification as to road rules or operating rules, but that is passed on by someone before the man comes to you?

Mr. Hewitt: We qualify them purely on the equipment only, proper handling of it with safety to themselves and all concerned.

Mr. Sheean: Will you tell us just what this equipment is that the Southern Pacific uses there in this suburban service?

Mr. Hewitt: We have today what is known as the Sprague General Electric multiple unit equipment. It operates on 1,200 volts direct current, and is also known as the multiple unit type of equipment.

Mr. Sheean: In the proposal here submitted by the men, request is made whereby the rates of pay change, depend upon the changes in the tractive effort of these electric locomotives, single or multiple unit trains, and I wish you would explain to

the Board, so that the layman may understand, just what you mean by a multiple unit train.

Mr. Hewitt: We have at the present time 81 standard motor cars. Each and every individual car is equipped standard; that is, one is identical with the other. Any one of these cars can be used and run and operated as a single unit. Then we can take three or five or six, and couple them up into one train, and by inserting the proper jumpers between cars (jumpers, by the way, are nothing more or less than cables that carry wires from one car to another), and after they are in place, then the motorman in his cab, or, for that matter, from any cab, on any motor car in the train, can operate the entire six cars as a unit, at once. In other words, when he starts from the head end, they all start simultaneously.

Mr. Sheean: And does the tractive power of that train multiply or increase with these various multiple units that are used in different parts of it? That is, taking the single unit, or having a single car with the motor, is the tractive power there the same as the tractive power on a three-car train, each having a motor on it?

Mr. Hewitt: Well, do you mean, when you say a two-car train, both cars motor cars?

Mr. Sheean: Both cars motor cars.

Mr. Hewitt: Why, naturally, the tractive power then is twice that of one car.

Mr. Sheean: Now, in the practical operation of that car, does the motorman have any different duty to perform, or any different work, as to whether or not the units are coupled up, or whether you are operating a single unit?

Mr. Hewitt: He has no more labor to perform in handling six or ten motor cars, than if he was handling one, for that matter.

Mr. Sheean: And just describe what the method of operation in those cars is—just what the motorman does, what his power of control, all about it.

Mr. Hewitt: Well, you understand one of our standard cars, we have four motors; we have also what is known as a contactor box, which is nothing more or less than the controller which they operate on street cars by hand; but of course, being a multiple unit type of equipment, this is placed under the car

body. We also have what is known as the automatic circuit breaker, a reverser, a set of motor reostats; and all this apparatus that is under the car body is operated from the cab where the motorman sits.

Mr. Sheean: Operates in what way? Just what does he do?

Mr. Hewitt: We have what is known as a master controller. It is a piece of apparatus about that high (indicating), and that wide (indicating), and that deep (indicating), and there is a handle there that he operates, making it possible to run the train in either direction, or run it at half speed, or full speed, at will.

Mr. Sheean: And just what is the physical act that he performs in starting the train?

Mr. Hewitt: Well, on signal to go, with everything being clear, he just gets hold of the master controller and pushes it around a distance of about five inches. That is, if he wants to run at full speed, or what is known as full parallel.

Mr. Sheean: That is what you call the controller, is it?

Mr. Hewitt: The master controller.

Mr. Sheean: The master controller. Now, is this master controller kept so that that circuit or contact is broken when no effort is applied to it? Does it come back into place while the car wheels move?

Mr. Hewitt: We have on our equipment what the boys usually call the "dead man's outfit." It is so arranged that should the engineer in his cab be taken with apoplexy, or heart failure—in fact, if he should faint, if for any reason he lets go of the handle of the master controller, of its own accord it will return to "off" position. That is, it means that it will shut off the power, and at the same time the brakes will apply in emergency and stop the train.

Mr. Sheean: And how is that accomplished?

Mr. Hewitt: In the train pipe we have what is called an emergency valve, that is connected by a small pipe to what is known as the pilot valve inside of this master controller, and in the handle of the master controller itself there is what is known as an emergency button. When the handle of the master controller is unlocked in any position, if he lets go of the handle, this button will fly up, and a trip will upset this pilot valve,

which then upsets a larger valve in the train pipe, and there being direct communication from the train pipe to the atmosphere, results in an emergency application of the brake.

Mr. Sheean: So that under this nickname, if the engineer is sick, or does anything, or is disqualified in any way from keeping this valve pressed into position, the train automatically stops?

Mr. Hewitt: Yes, sir.

Mr. Sheean: Now, about what is the physical effort of keeping this controller in position so that the train itself operates?

Mr. Hewitt: Well, a man has to exert sufficient pressure to overcome the tension of a spring of about three or three and a half pounds.

Mr. Sheean: So that in the operation, the engineer keeps this controller pushed over, and upon releasing it at any time, the train comes to a stop?

Mr. Hewitt: That is, if he releases it purposely, or for any reason should, as I said, become sick or faint, and if you let go of it at all, it comes back, and that will shut off the power and apply the brakes and stop the train.

Mr. Sheean: Are these trains operated with one man in the cab, or two?

Mr. Hewitt: One man in the cab.

Mr. Sheean: In the operation of multiple trains in the East, where you were familiar with them, was there one or two men kept in the cab?

Mr. Hewitt: One man in the cab of the multiple unit equipment ever since I was acquainted with it.

Mr. Sheean: Now, in the stopping of the train, just what does the man in charge have to do, stopping at stations?

Mr. Hewitt: Just shuts off the power and applies the air brakes in the usual manner.

Mr. Sheean: I wish you would explain just a little more in detail how the units are coupled up so as to make a multiple unit train. Is there any similarity between that and the application of air brakes throughout the whole line of a train?

Mr. Hewitt: To be very frank, the multiple unit principle for operating trains in the multiple unit, was copied from the train line hose, that makes it possible for the engineer to apply the brakes on all cars in the train from the cab, and release

them at will, from the cab. It has been carried into nothing more or less than a cable, that carries the proper number of wires, making it possible to energize them throughout the entire train, and cause the reverser, circuit breaker and controller to operate on all cars, from any cab that you go to.

Mr. Sheean: And is there any difference at all in the physical effort of a man operating a multiple unit train over what there would be in operating a single unit in that train?

Mr. Hewitt: No difference whatsoever, no, sir.

Mr. Sheean: The power is applied upon the different units simultaneously?

Mr. Hewitt: Individually, yes, sir. They take it from the wire through their own pantagraphs. He simply passes the current on from his master controller to make the controller, reverser and circuit breaker operate.

Mr. Sheean: Tell us what you mean by pantagraph?

Mr. Hewitt: The pantagraph is a device for collecting current from the wire and transmitting it to the cars for the operation of the motor, the compressor, and what is known as the dynamotor.

Mr. Sheean: That is, through the pantagraph you get the power in the same way that it is gotten through the trolley?

Mr. Hewitt: In the street, yes, sir, identical.

Mr. Sheean: And describe what a pantagraph looks like, or how that contact is brought about?

Mr. Hewitt: A pantagraph such as we have on our lines is diamond shaped, and it is possible to collapse it, and there is a catch for holding it down, and then you can release it, and springs take it up and make it touch the wire, and as long as those springs are in contact it will remain against the wire. There is no air pressure required to hold it up, springs only, although we release them with air pressure, so they will go up, and we can lower them with air pressure.

Mr. Sheean: Then there is no trolley tender in connection with this work?

Mr. Hewitt: No, sir; when the pantagraph is once up, it is always up until they lower it.

Mr. Sheean: Just how is that lowered?

Mr. Wewitt: By the use of air pressure, or in the event of a car not having any air on it. For instance, we will say a car

has been lying on a siding all night with the pantagraph lowered. We have a small hand pump whereby we can pump air into a small cylinder, which forces the latch out and releases it, and then the springs take it up so that it makes contact with the wire.

Mr. Sheean: During your time with the New York Central, did you put in and use a part of it in the instructing of men with reference to the use of electric power?

Mr. Byram: May I interrupt for a moment to ask a question, Mr. Sheean?

Mr. Sheean: Certainly.

Mr. Byram: What is the difference between a pantagraph and a trolley, Mr. Hewitt?

Mr. Hewitt: Well, they are virtually one and the same thing, except that the pantagraph is a different type of apparatus for collecting current. The function is identical.

Mr. Byram: Does the pantagraph have wheels on it the same as the trolley has?

Mr. Hewitt: In our equipment we have a roller, 24 inches across, that rotates on a shaft.

Mr. Byram: That is, in the pantagraph?

Mr. Hewitt: Yes, sir.

Mr. Byram: The trolley is, I suppose, the same as it is on the ordinary street car?

Mr. Hewitt: Yes, sir; just the same as these that you see on the streets here on the street cars.

Mr. Byram: The pantagraph is a sort of a frame, then?

Mr. Hewitt: Yes, a sort of a frame. They have a roller 24 inches across, on it.

Mr. Byram: That roller applies to the trolley wire as you go along?

Mr. Hewitt: Yes, that roller rotates as the train runs along. They also have what is known as a sliding contact, which simply slides along on the wire.

Mr. Byram: What is the advantage of the pantagraph over the ordinary trolley?

Mr. Hewitt: Owing to its wide bearing surface, there is no chance of its coming off of the wire at any speed.

Mr. Byram: That is all.

Mr. Park: I understand, then, that the object of the panta-

graph is, that the oscillation of the train running rapidly keeps it in contact where the ordinary trolley would not?

Mr. Hewitt: Yes, it is making contact with the wire at all times, under any condition and at any speed, owing to its wide bearing surface.

Mr. Sheean: While you were with the New York Central, were your duties there largely those of instructing and qualifying men for the use of electric power?

Mr. Hewitt: Yes, sir.

Mr. Sheean: Was your experience there as to the length of time that it took to qualify a steam locomotive engineer in the use of electricity about the same as you found on the Southern Pacific?

Mr. Hewitt: Well, on the Central, we used to take a little bit longer, owing to the fact that we had two types of electric locomotives, and the multiple unit equipment in addition to it, whereas on the Southern Pacific we have one standard type of equipment.

Mr. Sheean: How do you distinguish between an electric locomotive and these multiple unit trains? What is the difference?

Mr. Hewitt: In the electric locomotive, it is a machine the same as the steam locomotive on a train, capable of hauling it, and with such as they have on the New York Central road it is possible also to run them in multiple units; in other words, we can take two or three engines and couple them together, and put the proper jumpers between each and every engine, and then operate them from any cab.

Mr. Sheean: Well, now, in the case of those electric locomotives on the New York Central, if they are coupled together, and the jumpers in between them, they become multiple units?

Mr. Hewitt: Multiple unit locomotive equipment, yes, sir.

Mr. Sheean: Is there any difference whatever in the work or labor of a motorman or engineer in charge, whether he have the three electric locomotives couple together, or whether he uses the one?

Mr. Hewitt: No additional labor.

Mr. Sheean: The same principle that you have spoken of here, with reference to your type of equipment on the Southern

Pacific, would apply to the coupling together of three of the electric locomotives?

Mr. Hewitt: Yes, sir.

Mr. Sheean: On your type or style of equipment, is there any difference whatever with reference to what the engineer or motorman does, whether he have a single car or several cars coupled up as multiple units?

Mr. Hewitt: Well, if he runs a train of cars, the only difference is that he has a different stopping mark at each station, that is, all, but as far as the work in the cab is concerned there is no difference whatsoever.

Mr. Sheean: How with reference to his ability to stop a train, consisting of a number of cars, when he has electric power, as compared with the use of steam in the same situation?

Mr. Hewitt: Why, the process is identical.

Mr. Sheean: That is, the equipment and the handling of the air brakes is just the same?

Mr. Hewitt: Yes, sir.

Mr. Sheean: You do not, in qualifying already qualified locomotive engineers, go into the matter of the use of the air brake at all?

Mr. Hewitt: Well, the only way in which we differ is this, that we instruct the man as to how the equipment on our electric cars differs to that of the steam engine and locomotive; that is, the steam train, I should say. We have what is known as automatic release—not automatic release, I mean graduated release. I have heard so much about automatic release. We have what is known as graduated release, making it possible, after having made a full service application of the brakes, that as the train comes into the station it is possible to graduate the brake cylinder pressure to the atmosphere, making it possible to make a very nice, smooth, even stop.

Mr. Sheean: Do you know, Mr. Hewitt, whether or not in the East, where electricity has been installed on some roads, the difference is made in the number of miles made by electric power, being equivalent to a different number of miles made under steam power?

Mr. Hewitt: Well, my understanding is that on the Pennsylvania Road, a man in the electric service makes 160 miles, against a man in steam service of 100.

Mr. Sheean: In this suburban service on the Southern Pacific, with which you are familiar, are the engineers there paid on a mileage basis?

Mr. Hewitt: No, sir, they are not.

Mr. Sheean: How are they paid?

Mr. Hewitt: They have an arbitrary rate of $5 a day.

Mr. Sheean: How do they actually run in connection with that $5 a day? Have the same run from day to day, or do the men in that service change?

Mr. Hewitt: No, sir; they have runs there where the man changes every day. That is, no individual has a monopoly of day or night work. Each one gets his turn. He changes runs daily.

Mr. Sheean: Are some of these runs or the spread of runs longer than others?

Mr. Hewitt: Yes, sir. They have what is known as the long night in the Alameda Lines. It takes a man about 10½ hours to do his day's work, but for that extra half hour he gets an hour's overtime.

Mr. Sheean: And on all the rest of the service, they operate on a payment of $5 a day, for a 10 hour day or less?

Mr. Hewitt: Yes, sir, or less; they average up, in a week's time, taking all the runs and averaging up the time for the seven days, about 8 hours work a day.

Mr. Sheean: Some more and some less than the 8 hours, the longest one being 10½?

Mr. Hewitt: About 10½ hours, yes, sir.

Mr. Sheean: That is, run in rotation, so that each man gets that long run in his turn?

Mr. Hewitt: Yes, sir.

Mr. Sheean: It comes around to each man about how often?

Mr. Hewitt: I should say about once in every seven or eight days, if I remember correctly.

Mr. Sheean: Then how is this electric service protected, in case a man wants to lay off for a day, or a week, or ten days?

Mr. Hewitt: Well, if a man wants to be excused for any reason, for a day or week, for that matter, we call up what is known as West Oakland roundhouse and ask for a qualified

motorman to relieve Mr. So and So, on such and such a day, of course explaining what run he would be on on that day.

Mr. Sheean: You have, in addition to those who run regularly in this assignment, a number of men who are qualified both in steam and electricity?

Mr. Hewitt: Yes, sir.

Mr. Sheean: And the same extra board at the roundhouse protects this electric service that also protects the steam service?

Mr. Hewitt: Yes, sir, it does.

Mr. Sheean: Is there any need at all of a trolley tender in connection with the use of this pantagraph?

Mr. Hewitt: No, sir.

Mr. Sheean: Does the voltage used in electric operation differ on different railroads?

Mr. Hewitt: Yes, sir, it does.

Mr. Sheean: Just give us some of the spreads or methods in which there are differences between different railroads?

Mr. Hewitt: The standard voltage on the New York Central Lines is 666 volts. On our lines we use 1,200. The New York, New Haven & Hartford uses 11,000, and, I believe, in the Cascade tunnel, I think it is the Northern Pacific Road, if I am not mistaken, they use 6,600.

Mr. Sheean: In what way is this transmitted to different cars on these different roads?

Mr. Hewitt: On the New York Central Lines they use exclusively third rail, and the New Haven Lines, on their own territory, use the pantagraph, the same as we do. We use the pantagraph also. As you well know, on the elevated structures of New York, Brooklyn, Chicago and in the Subway they use a third rail.

Mr. Sheean: With reference to the care of these motors, or electric locomotives, just what does the engineer have to do as to oiling, or care or attention of them?

Mr. Hewitt: Did I understand you to say locomotives?

Mr. Sheean: Yes, sir; take them up separately.

Mr. Hewitt. Well, when I was with the Central folks, why, an engineer had no lubricating to do whatsoever. Aside from seeing that he had the proper number of fuses in a receptacle provided for that purpose, when he started out on a

run, and starting up his air compressor and closing the proper switches in the control circuit, and moving the engine for direction by moving her a foot or half a foot, to see she would operate both ways—aside from that, he had no labor whatever in preparing the engine for service. He had to look over the fuses, which meant he used his eyes and looked to see if the fuses were intact.

Mr. Sheean: On the equipment you use on the Southern Pacific, what does the engineer have to do in the way of preparing a train that he goes out on?

Mr. Hewitt: Well, he has to see that he has what is known as a kit, which is a small—you might say a small suitcase, in which he carries a number of tools and extra fuses, used in the various circuits.

Mr. Sheean: Does he physically put that on or take it off?

Mr. Hewitt: They generally take it up. It is right handy at our office there, at the piers, but after it is once on the train, of course, it is there for the day.

Mr. Sheean: What is there to do about any oiling or lubricating?

Mr. Hewitt: Nothing whatsoever.

Mr. Sheean: Is there, during his day's work, at any time, any oiling or lubricating to be done?

Mr. Hewitt: No, sir.

Mr. Sheean: Just why is that?

Mr. Hewitt: Well, we run our equipment now in this manner: Motor cars are brought in for inspection to the inspection shop, every 1,200 miles, at which time all lubricating is done—taken care of; and, of course, the electric equipment at that time is thoroughly inspected. The car then goes out on the road again and no work of any kind is done in the way of lubrication until she again comes in for inspection, which means after she has again covered 1,200 miles.

Mr. Sheean: And where are the lubricating boxes or the equipment for lubricating located, on this type of equipment?

Mr. Hewitt: Well, aside from lubricating brake valves, all the lubrication is under the car body. That is, the journals, the armature bearings—what is known as motor axle bearings, air compressor, dynamo—all that apparatus is lubricated every inspection.

Mr. Sheean: That is done in the shops?

Mr. Hewitt: Yes, sir.

Mr. Sheean: In connection with the work of your men out there, are the engineers ever called on to get up on the roof of a motor car.

Mr. Hewitt: Only in the event of fuse blowing, that requires renewing.

Mr. Sheean: In case they do that, what instructions are given as to what they should do, and what, if any, precautions are taken to enable them to avoid injury?

Mr. Hewitt: The only precaution necessary is to lower the pantagraph.

Mr. Sheean: How is that done?

Mr. Hewitt: By air pressure.

Mr. Sheean: In the equipment, is there provided anything at all to provide against the possibility that a man, through forgetfulness, might not lower the pantagraph, in case he wants to make use of any particular appliance or extra precaution?

Mr. Hewitt: Do you mean to do this work, without lowering the pantagraph?

Mr. Sheean: I mean whether or not, in addition to the proposition of providing the means of lowering the pantagraph—what I intended to ask was whether or not you provide them with rubber gloves?

Mr. Hewitt: Oh, yes, we have a good substantial rubber glove that can be used, in case it is necessary, for any reason.

Mr. Sheean: But those are wholly unnecessary in connection with the work on the roof of the car?

Mr. Hewitt: Only in emergency cases do they have to use them, which is very rare.

Mr. Park: What would you call an emergency case?

Mr. Hewitt: Well, sometimes a union in the pipe that leads to the cylinder that lowers the pantagraph, might work loose in some way and allow the air to escape, which we use in lowering, and if that prevented the pantagraph being lowered by air and it was necessary for a man to get over the road, to renew a main fuse, by simply getting on the roof, and standing on the running board, it would be perfectly safe to get hold of the pantagraph, even while touching the wire with his rubber gloves, and pull it down by main strength, which is very easy.

Mr. Sheean: These running boards are non-conductors, are they?

Mr. Hewitt: Yes; in dry weather they are perfectly safe.

Mr. Sheean: But if they are wet they would be conductors?

Mr. Hewitt: There is apt to be a leakage of current, due to the presence of water.

Mr. Sheean: I wish you would give us just a general idea, Mr. Hewitt, of what the nature of these lectures are, that you speak of, the instructions that are given; just explain that very briefly, giving us the method and manner of these instructions.

Mr. Hewitt: Well, the average engineer, as he comes to us, is unfamiliar with a great many phrases that we use; they are new to him; he does not know what they mean. Although he is furnished with an instruction book by the company when he enters the service, in fact when he presents himself for qualification, we generally ask a man not to bother with the book but to listen to us; and each piece of apparatus in turn is taken and thoroughly described, including its functions.

After these lectures, when everything has been gone over, we take him down on the car, or under it—in fact, we take him on the roof and let him see the mechanism of the pantagraph for raising and lowering it, and so forth, and in addition to that, while he is on the roof we have him personally change these fuses and replace them, just as it should be done in the regular service.

Then we take him under the car and we say to him: "Now, here is our controller and contactor box, and this is the reverser and circuit breaker," and so forth, and we have a man in the cab to operate them, so that he can see just exactly what it is that actually takes place. The idea is that he will learn much more quickly when he can see something take place, than if we were simply to talk to him about it.

The result is that about the second or third day the average man becomes quite proficient in the use of the various pieces of apparatus, and has a fair understanding of what they are for. As a matter of fact, there are so many ways in which I can liken an electric motor car such as we have to the steam locomotive, to the average engineer, that he very readily grasps the functions of the various pieces of apparatus.

Mr. Park: Did you ever disqualify any applicants?

Mr. Hewitt: That has been very rare, sir; but when a man comes to us, and after due trial, giving him all the chance in the world, if he cannot qualify and make at least 80 per cent, we have to turn him down; because the minute we put our approval on a man we are responsible for him.

Mr. Park: So your experience has been in connection with the qualifying of men who were already qualified steam locomotive engineers?

Mr. Hewitt: Yes, sir. I never qualified any class of employes that were anything else but qualified steam locomotive engineers, for the various companies with which I have been connected.

Mr. Park: And you had from one to three weeks, varying with the qualities of the different men—

Mr. Hewitt: It depends on the individual. Some men are bright, and smart, and pick up quickly, and other men are slow and learn not quite so fast.

Mr. Park: You are familiar with the Key Line; what is their method? Is it similar to yours?

Mr. Hewitt: To be very frank, Mr. Park, I have never looked into their method, and really have no idea.

Mr. Park: Do you know where they obtain their motormen from, or how they qualify them?

Mr. Hewitt: I have heard it said that they take the better grade of men from what is known as the O. T. Company. That is the Oakland Traction Company.

Mr. Park: That is a street car line?

Mr. Hewitt: Yes; and promote them. My understanding has also been, however, that they give preference to men that have had previous experience on steam railroads.

Mr. Park: What is the length of their line?

Mr. Hewitt: I should say that their longest run, out into Piedmont, from the end of their mole, as we call it, is probably, I should say, about twelve miles. I am not sure.

Mr. Park: Is it an active competitor of the Southern Pacific Company?

Mr. Hewitt: Very active.

Mr. Park: They use the same system—the pantagraph and overhead wires?

Mr. Hewitt: They have the pantagraph, yes; but they use a lower voltage; they use about 600 volts.

Mr. Park: In ascending heavy grades, do I understand that the tractive power is increased by throwing in another unit; that is, instead of using, as we do on the steam railroad, a double header, or two engines, the motorman simply throws in another unit, or two or three—as many as he may require, to accomplish the grade?

Mr. Hewitt: No, sir; that is not so. Regardless of the number of motor cars in the train, unless you have a car in the train that is defective, or, for some other reason you should not use it, the standard practice is that all motor cars are in operation from the time you start from one terminal until you get to the other, regardless of the grade you may encounter.

Mr. Park: So that you do not haul the train with one unit; you use them all?

Mr. Hewitt: We use all units, yes; that is standard practice.

Mr. Park: Then, in going up a grade, you simply increase the "juice" as they call it?

Mr. Hewitt: No, sir; the voltage is—

Mr. Park: How do you obtain this additional tractive power for ascending grades?

Mr. Hewitt: The voltage is standard, it does not vary on a level or on a grade, except that, like the steam locomotive, she will work a little harder going up grade than she will on a level track.

Mr. Park: Thus you have the same tractive power all the time, then?

Mr. Hewitt: Absolutely, yes; that is my understanding.

Mr. Sheean: The tractive power, however, Mr. Hewitt, is different on the multiple unit from the ones with the single unit; that is, before starting out from your terminal, if you couple them up,—take the New York Central case of using two or three electric locomotives, the tractive effort of those three used as a multiple unit would be—

Mr. Hewitt: Three times that of one.

Mr. Sheean: Three times that of one?

Mr. Hewitt: Yes, sir.

Mr. Sheean: But with the jumpers put in between them

and used as a multiple unit, the one man operating the one lever would have no difference in his work than if he had the single engine?

Mr. Hewitt: There is absolutely no difference in the manipulation of these three locomotives than if he was only operating one.

Mr. Sheean: Would he know whether or not they were all working, starting out alone?

Mr. Hewitt: After a man has a certain amount of experience, it becomes second nature to him to know whether all the cars in the train are operating or not. Particularly on leaving the station, if one car in the train, for any reason, should become inoperative, he naturally would be shy of the horse power of that car, and the train would not get away from the station as rapidly as if they were all working.

Mr. Sheean: Just the same as if the brakes on one of the cars—

Mr. Hewitt: If the brake on a car stuck, naturally your train would not accelerate in the usual manner; you would not get away as rapidly.

Mr. Sheean: In the case of your multiple train, if the motorman reaches the conclusion that they are not all operating effectively, just what does he have to do to bring about efficiency on all of them?

Mr. Hewitt: Our instructions are these: we will say, for instance, we have a train in which there are three motor cars, and the motorman knows that the train is not operating normally. Instead of wasting the time it would take to go back and find out which particular car is not operating, looking for blown fuses, and so forth, our instructions are for him to continue right on to the terminal, and not to waste any time on the road; and then what we term our terminal inspectors will get busy at once and try to locate the car and see what the difficulty is.

Mr. Sheean: Is there any way of testing or determining en route, whether there are any minor defects or lack of connection, and what is causing them?

Mr. Hewitt: Yes; if a man wanted to take the time, he could open what is known as the controller cut-out switches on say two cars, and then see if the third one would operate. If it would not, we would say: "That is the car." The idea is this,

however, that it would consume so much time to find out what particular fuse is blown, that we do not waste the time; we simply continue on to our terminals.

Mr. Sheean: And in your practice that obtains with reference to any defect of any kind?

Mr. Hewitt: Yes, sir.

Mr. Sheean: The engineer does not attempt to make any repairs or readjustment of any kind?

Mr. Hewitt: Well, if he is operating a single motor car, of which we operate quite a number, and that particular car becomes inoperative, he then must try to look up the trouble; and they have become quite expert, and manage as a rule to get in without any difficulty.

Mr. Sheean: Just what does this kit consist of, that you spoke of as being the only supplies that were taken on?

Mr. Hewitt: The kit we carry includes a monkey wrench, screw driver, machinist's hammer, cold chisel, rubber gloves, and the requisite number of extra fuses for the various circuits.

Mr. Sheean: About what do these standard motor cars weigh?

Mr. Hewitt: The standard motor cars such as we have on the coast, weigh about 54½ tons. The correct weight is about 109,400 pounds.

Mr. Sheean: And each one has how many motors?

Mr. Hewitt: Four motors each.

Mr. Sheean: And of what horse power?

Mr. Hewitt: 140 horse power; giving a total of 560 horse power per car.

Mr. Sheean: In this proposition based on tractive effort, does the tractive effort of your standard cars differ at different speeds?

Mr. Hewitt: Yes, sir. It is the greatest at the start and the lowest after the car has attained full speed.

Mr. Sheean: In your judgment and experience, as one familiar with electric operation, is there any relationship on a sliding scale, between the engineer's wages and the tractive effort of the locomotive or multiple unit train that he is operating?

Mr. Hewitt: I do not know of any, Mr. Sheean.

Mr. Sheean: As the tractive effort increases, whether by

multiple unit or otherwise, does the work or labor or responsibility of the engineer in any manner increase?

Mr. Hewitt: No, sir.

The Chairman: As I understand, the cars in this service, or rather each car in this kind of service, is equipped with its own motive power?

Mr. Hewitt: Yes, sir.

The Chairman: That applies, of course, to the freight as well as the passenger service?

Mr. Hewitt: Well, Mr. Chairman, we run in passenger service only in our territory.

The Chairman: Only in passenger service in your territory?

Mr. Hewitt: Yes, sir.

Mr. Sheean: So far as you know, this is the only strictly electric service in the Western territory, outside of this helper service that has been described on one or two roads?

The Chairman: The helper service, I imagine, is used for freight service, is it not?

Mr. Sheean: Yes, it is used in freight service; but I understand from this witness, that if you took the two locomotive helpers and coupled them into a multiple unit, each having its own power, the work of the engineer in handling the one would be just the same as if he had the two coupled together.

Mr. Park: Do I understand that there would be a second man on the other engine or locomotive?

Mr. Hewitt: In my experience with electric locomotives that can be operated in multiple unit, no.

Mr. Park: You do not need a man on the second engine?

Mr. Hewitt: No, sir.

The Chairman: What is the practice in that respect?

Mr. Hewitt: The year I was with the New York Central Company we never ran locomotives in multiple unit. They always ran as an individual unit. In other words, we did not have trains of sufficient length to require more than one engine.

The Chairman: Are you now operating them, on the line with which you are now connected?

Mr. Hewitt: No, sir; we have no electric engine on the Pacific Coast—that is, in our territory; multiple unit only—that is, the motor cars for suburban service.

The Chairman: Have you had occasion to observe the operation of trains where they were operated by the electric power, as to whether more than one man is necessary in their operation?

Mr. Hewitt: Not in my experience; no, sir.

Mr. Park: If they should double-head on the New York Central, or the New York, New Haven & Hartford, would the man remain at his motor?

Mr. Hewitt: Yes, sir; he would be on the first engine.

Mr. Park: Would there be a man on the next one?

Mr. Hewitt: No, sir; they have not done so in my experience.

Mr. Park: It would not be necessary?

Mr. Hewitt: No, sir; in my experience I never knew of it.

Mr. Park: What is this fuse plug you spoke of that is carried to be applied in case of a blowout?

Mr. Hewitt: The extra fuses. All electrical circuits have their fuses. The fuse in an electric circuit is always the weakest part of the circuit.

Mr. Park: For what purpose are they carried?

Mr. Hewitt: All the current going through the circuit passes through the fuse. If for any reason the insulation on any of the wires should in any way get fractured, so as to allow it to come in contact with something that would create a short circuit, it would usually be followed by a fire. The fuse in the circuit blows, and the instant it blows, that ends the circuit and prevents any fire, or anything like that. That is the standard practice in any electric circuit. They always have fuses.

Mr. Park: Then what does the engineer do?

Mr. Hewitt: Well, we will say, for instance, that his air compressor stops, which he can tell by his air gauge; the first thought that comes into his mind is, "Well, we have a blown fuse," so all he does is go back to the switchboard and take what we call the hook, that we provide for the purpose of opening the compressor switch, and he removes the fuse in the circuit, and as a rule if the fuse is blown (we use what is termed a cartridge fuse in that particular circuit), he can always tell by the fuse being warm—it is hot.

Mr. Park: How long does it take him to get it out?

Mr. Hewitt: He can do the whole thing in a minute. Just

open the switch, take out the fuse, put in a new one, and close the switch. That ends it.

Mr. Park: Is there any danger connected with that work?

Mr. Hewitt: No, sir; we provide a special hook. The hook is on the end of a wooden handle; it is about an inch and a half long, made of iron, and then the handle is about that long (indicating); it is round. About an inch and a quarter in diameter. On the end of the switch is a hole bored in the switch. There is no handle on it, and he drops this hook into the hole and pulls it out.

Mr. Park: In putting in the other fuse he simply makes the connection good again?

Mr. Hewitt: That is all; he completes the circuit with a new fuse.

Mr. Park: He carries a number of these fuse plugs in his kit?

Mr. Hewitt: For that particular circuit they carry four extra fuses.

Mr. Park: How often does this occur, this trouble?

Mr. Hewitt: Well, not very often. He might not put in one of those fuses in a day, in all of our trains. We run about 820 trains a day out of both piers in that territory.

Mr. Park: The inspection in the shop at the end of the trip ends to protect against the possibility of accident?

Mr. Hewitt: Everything is thoroughly gone over and inspected.

Mr. Park: An engineer might run a month or two months without having to put in a fuse?

Mr. Hewitt: Yes, sir.

Mr. Park: You speak of a short circuit occurring in case of trouble of that kind. Does that in any way jeopardize the motorman?

Mr. Hewitt: No, sir. What happens if we have a short circuit in any particular circuit, is the fuse in the circuit blows; it is all off. He will never know it blew until he finds he has no air. The cartridge fuse is what is known as the No-arc fuse. It is encased, and when it blows there is no flash of any kind, because the arc is confined in this fiber case that the wire runs through that is in the fuse.

Mr. Park: One of the witnesses testified to the voltage

jumping 18 inches or more while he was at work on top of a car. Under what conditions is that possible?

Mr. Hewitt: Where they use very high voltage, like on the New Haven, for instance, 11,000 volts, there is an element of danger most all the time if a man does not have due respect for the wire that carries this voltage.

Mr. Park: If he knows and understands his business, is he perfectly safe?

Mr. Hewitt: Yes.

Mr. Park: That is all.

Mr. Sheean: On the trains that you operate there, Mr. Hewitt, was there any work at all or anything at all that a second man on that motor car could do?

Mr. Hewitt: I don't know of anything, sir.

Mr. Sheean: And in case of any physical disability or ailment of any sort occurring to the engineer or motorman, the train automatically stops?

Mr. Hewitt: Yes.

Mr. Sheean: Now, in the case that Mr. Park asked you about, of coupling up two electric locomotives, would there be more than one man who could handle that multiple unit thus created at the one time?

Mr. Hewitt: Well, in my experience on the Central—by that I mean the New York Central, we took just as much pains in qualifying the fireman that came out of steam service to enter electric service as a helper as we did the locomotive engineer, the object being in view, naturally, that pulling standard passenger trains such as leave that terminal, that in the event of anything happened to the engineer, the fireman, on orders from the chief despatcher, would be qualified to bring the train to its terminal.

Mr. Sheean: And on the electric locomotive, the second man was provided, the helper?

Mr. Hewitt: On the electric locomotives, in my experience, they always had two men.

Mr. Sheean: But none on the multiple unit trains?

Mr. Hewitt: No, sir.

Mr. Sheean: Now, in the case of making two electric locomotives into a multiple unit, could the crew on the second locomotive co-operate in any wny with the one on the first?

Mr. Hewitt: If they had one there, yes, but they don't.

Mr. Sheean: The use of the one lever on the aforesaid locomotive, or in the other locomotive, if you see fit to use that, would make use of the power coupled together of the two units?

Mr. Hewitt: Well, that would really be unnecessary, because by having the train line jumpers between both engines one man could operate both units from either engine.

Mr. Sheean: And it could only be one man who would operate the multiple unit train at the one time?

Mr. Hewitt: It would not be necessary for more than one man to do it, no, sir.

Mr. Sheean: They are not operated as two steam locomotives could be, the one pushing against the other, but when they are used as the multiple unit the one man with the one controller makes use of all the power coupled together?

Mr. Hewitt: Yes, on both engines.

The Chairman: Do you have a helper on electric locomotives?

Mr. Hewitt: Yes, in my experience they always have a helper, the same on a steam locomotive the fireman performs his duty.

The Chairman: Where a train is made up of five or six cars, with corresponding power, the railroad is only required to employ one man, that is, one engineer?

Mr. Hewitt: That has been the practice, in my experience.

Mr. Park: Do they have a conductor or brakeman at each car? Or how many men do they have in the crew?

Mr. Hewitt: It depends on the length of the train. In our territory we carry an engineer in the cab, and a conductor and a brakeman, if we have more than two cars in the train; two cars or more.

Mr. Park: In case of a failure of your air pump what is done?

Mr. Hewitt: Well, I might explain that we have what is known as operating trailer cars. That is a standard style trailer car, that has no motor under it, or any electric apparatus of any kind.

Mr. Park: You call it a trailer?

Mr. Hewitt: Yes. But we have a cab on each end of that car, and in that cab we have a master controller and a brake valve, and the switches known as the master controller switch

and the circuit breaker switch, and by coupling an operating trailer car to a motor car, the engineer, from the cab of the trailer car, can operate the motor. Now then, in the event of the compressor on a motor car failing for any reason, and he cannot get it to operate again by inserting new fuses, he has an air brake failure, due to the compressor not operating, then he follows out standard instructions, to notify the superintendent and ask for orders. But if you take it in a multiple unit train, where there are a number of motor cars, the compressor on each individual motor is operating, and we have an extra pipe in electrical multiple unit equipment, known as the control pipe, and that is coupled up the same as the train pipe and the signal pipe, and the angle cocks open between all cars, and instead of one compressor furnishing the air for the entire train, they all do their share; that is, each compressor pumps air into its own main reservoir. It then comes out and passes through what is known as a synchronizing feed valve, and in passing through this feed valve it enters what is known as the control pipe, which carries a standard pressure of 70 pounds, and the instant it enters the control pipe it goes right on through the control pipe to the engineer's valve in the cab, where the engineer is operating.

Now, then, if for any reason the compressor on the first car in the train should become inoperative, it would not be necessary for the engineer to go back to the next motor car in the train to operate, because the air from all the compressors in the train would come up from this control pipe to his brake valve, and make it possible for him to watch the train line, and do the braking from that brake valve.

Mr. Park: What system of bells and whistles are used?

Mr. Hewitt: Well, we have what is known as the Trombone whistle, which has very good penetration. There is one on each end of each motor car, and also on each end of each operating trailer. We have lately introduced out there what is known as the Crewson gong. It operates by air pressure, and all the engineer has to do is to touch a lever with his foot, and it admits air to this device and causes the gong to ring.

Mr. Park: And the trombone whistle is also operated by air, is it?

Mr. Hewitt: Yes, sir; right alongside his gauges for his air brakes is the whistle valve.

Mr. Park: That is all.

Mr. Sheean: About what detentions do you have or have you had there because of any failure of these equipments? You spoke a moment ago of it being a rather unusual occurrence.

Mr. Hewitt: We have been operating now since June 1, 1911, and our worst month's detentions were in the month of February, 1912. During that month we made 335,167 car miles, and for each detention due to equipment failure we covered 25,597 miles. Our best record was in the month of May, 1913, during which month we made 360,405 car miles, and for each equipment failure we covered 180,202 miles.

Mr. Sheean: Well, now, do you include in that equipment failure the matter of any detention such as Mr. Park described, where the engineers would have to replace or renew any part of the equipment if it caused a detention.

Mr. Hewitt: Yes, sir, any part of the equipment, whether it is the air brake or the electric, that would cause a detention to traffic or service is called an equipment failure.

Mr. Park: Mr. Hewitt, do you know how that compares with the engine failures per thousand miles on the steam railroads?

Mr. Hewitt: I really could not say, Mr. Park. I don't know what their failures are.

Mr. Park: Say the average was 25,000 miles to an engine failure, would you consider this more favorable?

Mr. Hewitt: Well, I consider when you go around the world once without a stop, to use a slang phrase, "you are going some."

Mr. Sheean: Under this proposal, Mr. Hewitt, under your knowledge of the operating conditions there on the line with which you are familiar, do you know of any reason why the engineer who has a multiple unit train there should receive a higher rate of wages than the one operating a single motor car?

Mr. Hewitt: No, sir, I don't know of any reason why he should.

Mr. Sheean: And the men, as they operate there now, sometimes have a single unit, and other times a multiple unit?

Mr. Hewitt: Yes, sir, whatever the service demands.

Mr. Sheean: Taking them by trains?

Mr. Hewitt: Yes, sir.

Mr. Sheean: Is there anything different in what shall qualify a man in the use of the single or the multiple unit train?

Mr. Hewitt: No, sir. Any more than an engineer, as a rule, is supposed to look over his jumpers, and see that they are properly inserted, which is done in a very minutes.

Mr. Sheean: Now, Mr. Hewitt, there are some dangers inherent in the use of electricity, different from the use of other power. What is done with reference to instructing the men as to the dangers and the manner of avoiding them?

Mr. Hewitt: Well, sir, I might say that while I was with the New York Central Company, the average engineer that never has had any experience with electricity, approaches it with more or less timidity, and in order to relieve him of any fear that he might have in reference to it and the safety of working around it, we introduced there rather a novel method, and that was to have a man take hold of a live third rail with both hands, the rail being fully charged, and his hands being bare; the object being, as I say, to relieve him of any natural fear he might have in reference to handling electric equipment.

Mr. Sheean: What is it necessary to do in the method of insulating one?

Mr. Hewitt: Simply insulate the man from the ground. I can take an ordinary morning newspaper and lay it on the earth, and stand on the paper itself and get hold of a rail with anywhere from 650 to 700 volts in it, and all you can feel is cold iron. The dry paper acts as an insulator, and prevents the current from going further.

Mr. Park: In the case of rain or snow?

Mr. Hewitt: If the paper is absolutely dry it is safe. You can stand on wood. You can take your coat off and throw it on the ground, and stand on the coat, and you will be perfectly safe. Dry cloth won't pass current. Dry wood won't pass current. The condition is, though, that these insulators, such as paper, wood, or cloth, are dry.

Mr. Park: You have had experience as a steam locomotive man and know all of the risks incident to engine failure, the breaking of rods, and other things that break down on steam locomotives. How would you compare the risk as between an electric and steam locomotive—personal risk?

Mr. Hewitt: Well, my humble opinion is that a man is much safer, as far as those reasons are concerned, on the electric equipment, because we have no rods on multiple unit cars to break.

Mr. Park: No occasion to go under the cars?

Mr. Hewitt: Very rarely. We have some fuses under the car body that, should they blow, will make the car inoperative, that it is necessary for an engiuer to renew, but they are replaced with absolute safety, if he follows the simple instructions laid down.

Mr. Park: Is there any keying up of wedges or parts—wedges or parts of the engine?

Mr. Hewitt: That is all taken care of, sir, at the inspection shop. In fact, we do not have adjustable wedges.

Mr. Park: There is no mechanical work necessary about the engine?

Mr. Hewitt: No, sir, there is not.

Mr. Park: What is the extent of the mechanical responsibility of the engineer?

Mr. Hewitt: Well, the worst thing our boys there have to do is to renew an air hose, should it burst.

Mr. Park: I mean by that question, to what extent do you hold them responsible for mechanical failures—failures of parts, in the way of discipline, assuming that it is a neglect of duty?

Mr. Hewitt: I really do not know of any mechanical failures we might have that we could hold the engineer responsible for.

Mr. Park: They are not responsible for preparing the motor or doing any work on it, after they arrive at the end of the run?

Mr. Hewitt: No, sir.

Mr. Park: Do they report on a work book, work to be done, or do the inspectors take care of that?

Mr. Hewitt: We have what is known as an "electric train crew's trouble report," that is used by conductors or brakemen, as well as the engineer, to report trouble of any nature with the equipment. For instance, if we should have a door in the car body that is operating stiff, and hard to manipulate, the conductor uses that form to report that to inspectors at the

terminals, and it is used also by the engineer to report a fuse blown out in any particular circuit, or anything pertaining to the electric equipment, or the mechanical end of it, for that matter.

Mr. Park: It is not necessary, then, to have as high a degree of mechanical knowledge in operating an electric motor as a steam locomotive?

Mr. Hewitt: I do not consider it so.

Mr. Park: That is all.

Mr. Sheean: In connection with the instructions qualifying men, do you endeavor to point out to them all the dangers and possibilities of dangers, and how they may be avoided?

Mr. Hewitt: Yes, sir; we take the greatest pains to point out to a man where there is an element of danger, and the proper way of avoiding them at all times.

Mr. Sheean: Not only in the lectures or examinations, but is that also incorporated in your instructions? I think you said you had a special study—

Mr. Hewitt: It is incorporated in the instruction book that is put out by the company.

Mr. Sheean: Have you a copy of that?

Mr. Hewitt: No, sir, I did not bring one with me. Possibly Mr. Campbell might furnish one.

Mr. Sheean: Do you know, Mr. Campbell, if there is a copy of the instructions that you have here, that are issued to the electric men? Have you one of them here, so I might identify it while Mr. Hewitt is on the stand? I haven't seen it. Now, what do you do in the matter of any hostlers on this electric power?

Mr. Hewitt: We have in our service today, four hostlers and two assistants, and these men came to us as a legacy from steam service.

Mr. Sheean: Just what do they do?

Mr. Hewitt: For instance, when night time comes and the increased traffic requires more cars in the train, these men make up these trains and assist, sometimes, the engineer when he puts an extra car in the train, by doing the necessary flagging. Then, in the Alameda service, we have a hostler and an assistant, who brings all cars from Alameda pier to our shops, at West Ala-

meda, that have to come in for instruction. That is a matter of something like two and a half to three miles.

Mr. Sheean: What do you pay these hostlers?

Mr. Hewitt: They get the standard rate of pay that is paid in steam service, $85 a month.

Mr. Sheean: What about the engineers or motormen, in the multiple unit trains there, or in this suburban service? Do they do any work in connection with the switching or in making up their trains?

Mr. Hewitt: At night time, or in the morning, when there is a great deal to be done at the piers, why, they do handle their own motor cars to go out on storage tracks, and pick up trailers or motors, as the case may be, but in the light hours, such as the middle of the day, or after the rush hour in the evening, that work is usually taken care of by the terminal forces, hostlers and so forth.

Mr. Sheean: But under the practice there, the engineer, irrespective of the miles he may run, or the work that he may do in connection with these electric motors, is paid a uniform rate of five dollars per day, for ten hours or less?

Mr. Hewitt: Yes, sir.

Mr. Sheean: And you may and do use him, either in the making up of these trains, or in any other work in connection with the movement, up to but not exceeding ten hours a day?

Mr. Hewitt: Yes, sir.

Mr. Sheean: Has there ever come to you any request or claim for the putting of this electric service on a tractive power basis, other than this universal request presented to all railroads?

Mr. Hewitt: No, sir, never has.

Mr. Sheean: Are you pretty well acquainted with the engineers in that service?

Mr. Hewitt: I know each and every man, because I put him through his course of sprouts.

Mr. Sheean: Has there ever been any report made to you by any of these engineers as to their present condition or present scale of wages?

Mr. Hewitt: Well, when the matter was ever discussed by any of them with me, they always expressed themselves as very well pleased and satisfied with the service and its environment.

Mr. Sheean: Ever any discussion among any of these men who are doing this work with reference to basing their rates of pay upon the tractive power of the multiple unit motors?

Mr. Hewitt: No, sir; I never have held any conversation with any of them in reference to that matter.

Mr. Sheean: And in the electric motor car equipment, you do not and have never employed any helpers?

Mr. Hewitt: No, sir, we never have.

Mr. Sheean: And on any of the lines in the East, on these electric motor cars, do you know of the employment of any second man on the New York Central or Pennsylvania?

Mr. Hewitt: No, sir; not in my experience have I ever known them to employ a second man on multiple unit equipment, which means motor cars.

Mr. Sheean: These electric locomotives, as you distinguish them, are of varying size and dimensions?

Mr. Hewitt: Yes, sir; varying horse power.

Mr. Sheean: What are some of the roads in the East where you knew of their use?

Mr. Hewitt: They use them on the New Haven Road.

The Chairman: Do you use the term "helper" as distinguished from the term "fireman?"

Mr. Sheean: Yes; they in their proposal make use of that term "helper."

The Chairman: When you ask whether a helper is employed, you mean whether there is a man there other than the engineer?

Mr. Sheean: A man other than the engineer. On any of this service, Mr. Hewitt, on electric motor cars, do you know of a second man of any sort, other than the motorman or engineer?

Mr. Hewitt: You mean on strictly multiple equipment, composed of a number of motor cars in the train?

Mr. Sheean: Yes.

Mr. Hewitt: No, sir.

Mr. Sheean: On electric locomotives, you say a second man is employed on the New York Central?

Mr. Hewitt: The second man has been the fireman, that has entered the electric service, from steam. Prior to that, he

was a fireman on a steam locomotive, and entered the electric service with the title of a helper.

Mr. Park: Do you think he is necessary, so far as the operation of the locomotive is concerned, outside of signals in the rules of the transportation department?

Mr. Hewitt: Well, as a matter of safety, I would say yes.

Mr. Park: In what way?

Mr. Hewitt: In the event of anything happening to the engineer, that there would be somebody on the engine to take hold of the train and handle it.

The Chairman: I understood you to say a while ago, that a fireman was employed in each instance; that is, one fireman was employed in each instance. That there was an engineer, for instance, and a fireman.

Mr. Hewitt: The fireman is the man that, as I explained, was originally in steam service as a fireman.

The Chairman: I understand.

Mr. Hewitt: Then, if he wants to enter electric service, after qualifying, he is put on there, but they change the title. They call him a helper.

The Chairman: On this line that you speak of, do you have one engineer and a helper? I understand you have eliminated, on the other cars, the extra engineer for each car, but do you have on the first car, the car that is furnishing the motive power, or, rather, directing it—do you have on there, an engineer and a helper?

Mr. Hewitt: You mean, Mr. Chairman, an electric locomotive that is the only motive power in the train?

The Chairman: That is what I mean.

Mr. Hewitt: Yes, they have a helper. In other words, two men.

Mr. Park: Do I understand that is true on your installation?

Mr. Hewitt: We have no electric locomotives.

Mr. Park: So you do not have a helper with the motorman in your service?

Mr. Hewitt: In our service, no, sir.

The Chairman: What do you have there?

Mr. Hewitt: We have, Mr. Chairman, the same type of train, only on a larger scale, as they use on the elevated roads

here in Chicago, or in New York, or in the Subway. In a train of ten cars, we will say, five of them are trailer cars on which there is no electric apparatus outside of electric lights, and the other five cars in the train are motor cars, with motors under them, and the necessary apparatus with which to operate them.

The Chairman: Do you have a third rail?

Mr. Hewitt: In the Subway, on all elevated structures in the cities of New York, Brooklyn and Chicago, they have a third rail, yes.

The Chairman: On your line?

Mr. Hewitt: Our line is an overhead trolley wire, that carries 1,200 volts.

The Chairman: You have there, to start out to equip a train, an engineer and helper, do you?

Mr. Hewitt: No sir. We have no electric engines. We have multiple unit motor cars.

The Chairman: You just simply have a motorman, as we would say in ordinary parlance. And then who manipulates the trolley?

Mr. Hewitt. Nobody; that manipulates itself. You see the type of pantagraph that we have has no rope attached to it, or anything like that. It is a piece of apparatus, so constructed that when it is once released, the powerful springs make it go up, and it makes contact with the wire, and will stay there indefinitely.

The Chairman: No tendency to get out of alignment?

Mr. Hewitt: No, we have a large roller, twenty-four inches across, and that gives it a large radius on which to swing, regardless of the speed of the train. It is not a grooved trolley wheel, such as they have on street cars.

Mr. Sheean: You distinguish between the electric locomotive and the motor car?

Mr. Hewitt: Yes, sir.

Mr. Sheean: Now, I wish you would make clear just what you mean by the electric locomotive and the motor car?

The Chairman: I do not quite understand that myself.

Mr. Sheean: Have you any sketch here? You do not have the electric locomotive on the Southern Pacific?

Mr. Hewitt: No, sir.

Mr. Sheean: Now, describe one of these New York Central

electric locomotives, on which they put an engineer and fireman, we will say, so as to have it perfectly clear.

Mr. Hewitt: One of the standard New York Central electric engines has four motors under it. They have four pairs of driving wheels, and the armature for each motor is wound directly on the driving axle. The total horse power of one of these machines is 2,200, and it is sufficient to take—that is, they are designed to haul a 500 ton train, sixty miles an hour, on 600 volts. In other words, they simply remove the steam locomotive from the train and attach the electric locomotive to it, and it is powerful enough to haul this train over the line, at that speed, with that tonnage. That is what it was designed for. Now then, when we say multiple unit motor car, we have, for instance, a car in our territory that has only got 560 horse power, and the standard practice nowadays, in multiple unit equipment, is that we have a motor car and a trailer car, a motor car and a trailer car, a motor car and a trailer car, so on indefinitely. They alternate.

The Chairman: Are those cars the same as those that are used in what is known as the inter-urban service, in different states?

Mr. Hewitt: Yes, sir.

The Chairman: Operated on the same plan?

Mr. Hewitt: On the same principle, yes, sir.

Mr. Sheean: On those like the inter-urban cars, you, under your practice, take a steam locomotive engineer and if he qualifies for that electric service, he is placed in sole charge of the mechanical operation of that train. The engineer becomes the motorman?

Mr. Hewitt: Yes, sir.

Mr. Sheean: You have no fireman, or no one corresponding to the position of fireman in steam service, on that kind of a train?

Mr. Hewitt: No, sir; not on that kind of equipment.

Mr. Sheean: Now, on the type of locomotive that you have described as being on the New York Central, they put on the two men, an engineer and a fireman?

Mr. Hewitt: Yes, sir; he is called the helper.

Mr. Sheean: And does that fireman or helper, on the New

York Central, have charge of the heating plant which supplies the heat to the train behind him?

Mr. Hewitt: Yes, sir; in the winter months they have a small boiler there for generating steam, to heat the cars in the train, and it was his duty during the winter months to attend to this on the road.

Mr. Sheean: Now, there is no such operation as this New York Central operation, on the Southern Pacific?

Mr. Hewitt: No, sir, there is not.

Mr. Park: Is that heating apparatus a sort of a Baker heater? Does it burn hard coal?

Mr. Hewitt: No, sir, we use crude oil.

Mr. Park: The fireman or helper manipulates that and keeps the steam heat supplied to the train?

Mr. Hewitt: Yes, sir.

Mr. Park: After the locomotive is cut off?

Mr. Hewitt: Yes, sir.

Mr. Park: And he also is in a position to watch out for signals?

Mr. Hewitt: Well, I might say that I was back in New York in the month of October last, and I had a ride on one of their new electric engines. They have a few new ones there, and they have a very much improved type of boiler, much larger, because with a run of thirty-four miles on the Hudson Division, it will be necessary to take care of the train, and the boiler they did have was most too small for anything over a six car train.

Mr. Sheean: Now, on that type and style of locomotive, on the New York Central, in addition to the duty of operating the heater which supplied the heat to the passenger train, was there on that the automatic device that you have spoken of here, by which, in case of anything happening to the engineer, the train would come to a stop?

Mr. Hewitt: No, sir; there was not.

Mr. Sheean: So that, on that particular type or style of a locomotive, there was necessity of having some other man, which was a good reason for having a second man up in the engine or the locomotive?

Mr. Hewitt: Yes, sir.

Mr. Park: How are the fires on the Oakland mole heated?

Mr. Hewitt: We have no heat; we have sunshine in that country.

Mr. Park: You do not have the Baker heater in any of the cars?

Mr. Hewitt: No, sir.

Mr. Park: If they were run in a cold climate, would they be equipped with heaters, or are they equipped with Baker heaters?

Mr. Hewitt: It would be possible to equip them with the electric heater, which is customary on electric equipment.

Mr. Park: Who then would heat the train?

Mr. Hewitt: In the event of heating electrically, why, the train crew looks after that. They would close the necessary switches.

Mr. Park: Then a fireman or helper would not be needed on any, except a trunk or main line operation?

Mr. Hewitt: Yes, sir.

Mr. Byram: You think, Mr. Hewitt, if I understand you, that that is one reason why the fireman or helper was employed on those electric locomotives down on the New York Central, because there had to be some one there to keep up a fire in the boiler, to heat the trains, as well as to do other things?

Mr. Hewitt: Well, sir, I could not say as to that. I have an idea, although I am not sure, that there is a state law compelling them to have two men on an engine.

Mr. Byram: That would be the reason why you could not get along without a fireman, because of necessity of providing steam heat to heat the train, and the steam locomotive was taken off?

Mr. Hewitt: Yes.

Mr. Sheean: In addition to that, at the time you were there, they did not have upon these engines the automatic device you have out here, by which, in case of anything occurring to the engineer, the train automatically comes to a stop?

Mr. Hewitt: No, sir.

Mr. Sheean: Is it feasible to apply the same sort of an adjustment to an electric locomotive that there is in the multiple unit train?

Mr. Hewitt: They may get a device some day.

Mr. Sheean: But there is not as yet?

Mr. Hewitt: No, sir, not to my knowledge.

Mr. Sheean: What difference is there in the application of that device, Mr. Hewitt, to the multiple unit and to the electric locomotive, whereby, upon any release from this controller, it automatically stops the train? What difference is there in applying that to an electric locomotive and to the multiple unit?

Mr. Hewitt: Do you mean what would happen in case the engineer should—

Mr. Sheean: No, but why there is anything mechanically different between the two, that would make it inexpedient, or make it improper or impossible to apply this equipment that you have spoken of as being on your train, whereby, if anything occurs to the engineer, the train automatically stops; why that could not be applied to the locomotive, as well as to the multiple unit?

Mr. Hewitt: I know of no very good reason why. I would like to get a patent on it.

Mr. Sheean: Well, as I followed you—I do not know the details, but as I followed you here, the principle simply was that the engineer, in the operation of the multiple unit train, constantly kept his hand upon the controller and a pressure against the spring of some three or three and a half pounds, and, if, for any reason, his hand or grip was released, the controller immediately caused the train to stop?

Mr. Hewitt: That is true in multiple unit equipment.

Mr. Sheean: Now, what is there about electric locomotive equipment that would make that inapplicable to that kind of equipment?

Mr. Hewitt: Well, up to the present time, as I said earlier, they have nothing whatsoever of that description, that I know of, and if anything should occur to an engineer, such as apoplexy or heart failure, why, if he had the throttle out in series parallel, why, she would continue right on.

Mr. Sheean: On the electric locomotive, as distinguished from the multiple unit?

Mr. Hewitt: Yes, sir.

Mr. Sheean: I take it, then, Mr. Hewitt, that in your judgment, the electric field is still a fertile field for development, change and improvement, necessitating a study of local conditions?

Mr. Hewitt: Yes, sir.

Mr. Sheean: As to just what can or can not be done in particular places?

Mr. Hewitt: Yes, sir.

Mr. Sheean: I think that is all.

CROSS EXAMINATION.

Mr. Stone: I think you said, Mr. Hewitt, that taking a man who was sent to you to be qualified, that with the two days' lecture and two days on the structure, in showing the practical operation of the equipment, that the average man would qualify in about a week's time?

Mr. Hewitt: In about a week's time, on the equipment. Of course, I may have added, that after he leaves us, he is then given a certificate and goes out on the line, as what we call a student motorman. That is, he has to make so many trips on a train, in actual service, under the supervision of the regular motorman of that train, who signs this certificate for every trip that is made, and after having made the necessary trips required by the rules of the company, he is then assigned to the service when he is required.

Mr. Stone: So in addition to your qualifying a man, you also require the certificate or endorsement of a man in actual service, who says he is O. K.?

Mr. Hewitt: Yes, sir; those are the rules of the company.

Mr. Stone: Well, if anything should happen to that man, and it developed later he was not all right, would it be a reflection on the engineer who O. K.'s his certificate?

Mr. Hewitt: Well, that would depend altogether on circumstances, what the nature of the occurrence was. If it was proven, on an investigation, that it was due to my negligence that he was not qualified to cope with this emergency, I would be the man that would be open to censure.

Mr. Stone: But suppose it was proved that you gave him the lectures, and practical demonstrations all right, and in the number of trips that he was required to ride with this engineer, that this engineer did not discover he was not qualified, then who would it be on?

Mr. Hewitt: That would be up to me, for allowing him to get out without being fully qualified.

Mr. Stone: You, in turn, would at once go back to the engineer, would you not, for O. K.'ing a man who was not qualified?

Mr. Hewitt: That might happen, but I have never known of a case in my experience.

Mr. Stone: You would not want to leave the impression with the Board, would you, that you can take any man and qualify him for that service, in a week's time, unless he was a practical railroad man?

Mr. Hewitt: No, sir; I would not want to have that impression taken by anybody, because, as I explained, in my experience they have been all fully qualified steam locomotive engineers that we have qualified for electric service.

Mr. Stone: In other words, you had a man who was fully equipped, and has full knowledge of automatic signals, and standard railroad practice, and you simply give him the electrical training, in addition?

Mr. Hewitt: Yes, sir.

Mr. Stone: Where he is changing from one motive power to another?

Mr. Hewitt: Yes.

Mr. Stone: I think you said the man's duties were just the same on one car or ten. Are we to understand you would take the position that there is no greater responsibility on a man with ten heavily loaded cars than there is with one?

Mr. Hewitt: In what respect, please?

Mr. Stone: In the general respect of the requirements of a locomotive engineer; or are you simply speaking of the mechanical duties, the operation of a controller lever?

Mr. Hewitt: That is what I had in mind when I answered that question.

Mr. Stone: In regard to this master controller that has to be held down all the time, I wish you would just illustrate to the Board the position a man has to sit in, in order to keep his hand on the brake valve, and his hand on this master controller. It is a button, right in the center of his hand, that he presses down all the time?

Mr. Hewitt: Yes, sir; the average engineer sits about like this (illustrating). This handle is here (indicating), and here is the brake valve here (indicating).

Mr. Stone: He sits in that strained position all the time, with constant pressure on his hands of four pounds?

Mr. Hewitt: He can stand, if he wants to. About three and one-half pounds.

Mr. Stone: If he was to put a cork, or plug, or anything of that nature there to hold it down, he would be disciplined for it, would he not?

Mr. Hewitt: Yes, sir; the rules are explicit that a man must keep the handle of the master controller, unlocked, while the train is moving.

Mr. Stone: I know our men on some of these suburban trains have complained of the constant strain, and how tired they became from the constant pressure of holding it down with one hand. They say after it is kept up three or four hours, it becomes a burden. Do you agree with that, or not?

Mr. Hewitt: I agree in this way, that a new man has complained to that extent; but after he has been with us about three or four months, he forgets it.

Mr. Stone: And his hand becomes calloused in the center, and he don't notice it?

Mr. Hewitt: Not necessarily. Most of them wear gloves.

Mr. Stone: But there is a very constant pressure down with the left hand, all the time, every minute he is on duty, when the train is running?

Mr. Hewitt: Yes, sir; I might say this: that as soon as he brings the handle of the master controller away from off position, it is not necessary then to hold the button down, because there is no tension on the button whatsoever, but there is on the handle itself. As usual, they sit this way (illustrating), and when they straighten the arm the weight holds that out where it belongs, in what is known as the parallel position, and to a fellow that weighs a pound or two, there is no trouble to hold it there.

Mr. Park: That is a refinement of the manipulation of the air brake, peculiar to electric service. It is not in use on steam locomotives?

Mr. Hewitt: No, sir.

Mr. Park: Is it installed on electric cars, by reason of running through streets where there are a good many people, making it necessary to stop quick?

Mr. Hewitt: No, sir; that is not the object at all.

Mr. Park: What is the object?

Mr. Hewitt: It is there, purely and simply, in the event of a man becoming incapacitated for any reason.

Mr. Park: Why is it any more necessary on an electric car than on a steam car?

Mr. Hewitt: Due to the fact that the man is alone. It protects not only the man, but all the people in the train, and the train itself.

Mr. Park: That is the reason that it is used?

Mr. Hewitt: Yes.

Mr. Stone: Is there not a further reason, Mr. Hewitt, that at times there have been cases where a man, through a faulty fuse, or something of that kind, got a shock, and he was afraid of that, so you take this extra precaution? Was that not first brought out as what was known as the "dead man's appliance"?

Mr. Hewitt: Why, this apparatus in no way has anything to do, that I know of, with the fuse blowing.

Mr. Stone: Or a man getting a shock? Was not that what first brought it out?

Mr. Hewitt: Well, in the early days, that is, some years ago, when equipment was not as well put up as it is today, there have been minor cases where the handle might become charged, due to defective insulation on a wire, or something like that.

Mr. Stone: If you were with the Brooklyn Rapid Transit Company, when it first went from steam to electricity, you remember some of their trains they could not stop at all; they went clear down against the bumping post and stood and chewed for a half hour?

Mr. Hewitt: That is true, but that is ancient history.

Mr. Stone: I am not so ancient that I cannot remember when it happened.

Coming back to this question of the controller, every man in the electric service is tested very closely by your railway surgeons for heart trouble?

Mr. Hewitt: Well, I do not know. I never have heard tell that a man had to pass any more rigid examination by the surgeons, for electric service, than he did for steam. The examination, as I know it, has always been standard for either service. That is substantiated by the fact that every man that came to

me, had to be qualified for that service, and had already passed the surgeons, as a locomotive engineer or fireman.

Mr. Stone: He was not required to pass any other?

Mr. Hewitt: Not to my knowledge, no, sir.

Mr. Stone: I know, on the electric lines in the East, we have quite a good deal of complaint from our men, on account of the rigid examinations and re-examinations, if they have a slight murmur of the heart, or anything of that kind, when in electric service.

Mr. Hewitt: I have never heard of that.

Mr. Stone: It is a fact though, is it not, that occasionally a man does get a shock in this service?

Mr. Hewitt: That makes him so many years younger.

Mr. Stone: It depends on how heavy the shock was, does it not, whether he is younger or not, when he gets through?

Mr. Hewitt: Well, sir, my experience is this: I do not care who the man is that enters electric service, it is only a matter of time before he is going to get a shock. If he never had one before, it might surprise him, but after that he will say "that's easy."

Mr. Stone: You would recommend it as a health producer, would you?

Mr. Hewitt: It is, for rheumatics.

Mr. Stone: What about some of these pictures we show in our exhibit? Would you think some of these men we show there would recommend it as the real thing?

Mr. Hewitt: These men were not shocked. They were mixed up in what is known as a short circuit, and were burnt.

Mr. Stone: If the shock is severe enough, the man would be burnt, would he not?

Mr. Hewitt: With the voltage they use nowadays on electric apparatus—I am speaking of the current that it takes to operate the controller apparatus—if you touch it, you let go very quick. You can't hang on if you want to. It won't allow any familiarity at all.

Mr. Stone: With your 1,200 volts, do you think any healthy man can take that full charge and get away with it?

Mr. Hewitt: Yes; under certain conditions. I would not recommend that he get directly hold of the wire and stand with one foot on the running rail, because he would then get the full

strength of the current; but even at that, it would have a tendency to drive him, to throw him away from it.

Mr. Stone: But if it did not, and his heart was weak, it would kill him, would it not?

Mr. Hewitt: It might.

Mr. Stone: You are familiar enough with electricity to know what the voltage is in the different penitentiaries where they electrocute, are you not?

Mr. Hewitt: My understanding is that at Sing Sing, in New York, they use 1,800 volts. No doubt you are familiar with the method of executing criminals. They put the man in the chair and strap him fast. He cannot get away. You have no doubt read where it has taken sometimes two or three shocks, and sometimes as long as two or three minutes, before life was extinct, which only goes to prove that if a man is not tied fast, and happens to touch something with 600 or 1,200 volts, he will just back up.

Mr. Stone: You often see one of our ordinary trolley wires break in the street and come down to the ground and just writhe over the ground as if it was alive, and blue flame spurts out from it every time it touches anything?

Mr. Hewitt: Yes.

Mr. Stone: And yet you say that that is a perfectly harmless thing at that voltage?

Mr. Hewitt: I have picked up a live trolley wire in the street with an ordinary soft cap.

Mr. Stone: Yes. I know one other case where a little boy ran against a telephone wire hanging down from the trolley wire, and it had become charged from the current on the trolley wire, and he got wrapped up in it, and was all burned up, and his mother ran to his assistance, and they were both crippled for life before they finally got coats wrapped around the wire and got it away from them. So that it is not always the same, is it?

Mr. Hewitt: Of course a child is not supposed to know what a man is supposed to know, who has been thoroughly instructed and shown wherein the danger lies.

Mr. Stone: But as to this one man in the cab: I think you brought out, in reply to a question of Mr. Park, that in New York State they require two men in the cab of all locomotives, and a number of our States have that same law, have they not?

Mr. Hewitt: I could not say as to that, because I am not familiar with the laws. I said I thought, or had an idea, that there was a law to that effect.

Mr. Stone: I might add, for the information of the Board, that it is being discussed very strongly in a number of our States where we have these fast limited trains, to put two engineers in the cab of all the limited trains. That will be another burden that, I suppose, will be charged to organized labor; and yet I do not think the demand is coming from organized labor at all. I know it is being discussed very seriously at the present time in two of our Eastern States where they have limited service and the fireman is very busy trying to keep coal in on one of these fast runs.

Is it not a fact, however, Mr. Hewitt, that there is just as much responsibility in the man in the front end of one of these heavily loaded suburban trains as there would be on some of the suburban trains requiring two men, with a steam locomotive?

Mr. Hewitt: As far as the observation of signals is concerned, and all rules of the operating department, to my mind, the responsibilities are just as great.

Mr. Stone: And it is also a fact, is it not, that on many of our roads it is a standard operation under the rules, now, to require the fireman and the engineer to call signals, or exchange signals with each other, or the position of all automatic signals?

Mr. Hewitt: Yes; that has been my experience.

Mr. Stone: Yet here we have the man in the cab of these heavily loaded suburban trains, and we have every reason to believe that the lives of these men are just as precious and the lives of these passengers, as in the case of any other train; and yet the whole responsibility does center on the one man in the cab. That is true, is it not?

Mr. Hewitt: That is true, certainly, as regards multiple unit suburban trains.

Mr. Stone: That is, shutting off power and applying the brakes in the usual manner, he handles the train in just the same manner as the steam locomotive engineer handles his train, and goes through practically the same process of shutting off

power and applying his air brakes, and he uses skill and judgment and everything else in making his stops just the same as a steam engineer does, does he not?

Mr. Hewitt: It requires the same amount of skill to make a stop with an electric train, as far as brakes are concerned, as it does with steam.

Mr. Stone: Speaking of this rate, Mr. Hewitt, that you have there at the present time, is it not a fact that that is just the same old suburban steam rule, adapted to electric service?

Mr. Hewitt: Yes, sir; in that service.

Mr. Park: Do you know what they pay on the Key Line?

Mr. Hewitt: I would not say for sure, but if I am not mistaken, I believe they get $4.60 a day for 10 hours. I am not positive that those figures are exactly correct.

Mr. Stone: That is under a contract with the Amalgamated Street Car Association, I think.

Mr. Byram: Is the Key Line a suburban line something like yours?

Mr. Hewitt: Yes, sir. It radiates out from what they call the Key Route Pier, and covers territory in Berkeley and Oakland.

Mr. Byram: Mr. Hewitt, do you know how many trains they run? Does it compare with yours, in any respect, as to the number of trains run?

Mr. Hewitt: The service is practically identical in both systems, because they run their boats just the same as we do ours.

Mr. Byram: They run about as many cars as you do in this service?

Mr. Hewitt: About the same thing, yes. It is about the same thing.

Mr. Byram: Where do they get their men, to run their trains?

Mr. Hewitt: I have heard it said, although I am not positive that I have correct information, that they do promote some men on the street car service, although I have been told that they prefer men, when they hire them for the position of motorman, that have had steam road experience.

Mr. Byram: They do not recruit their motormen from any railroad, as your company does?

Mr. Hewitt: No, sir; not that I know of.

Mr. Byram: Are they fairly successful? Do they have much trouble with their trains?

Mr. Hewitt: Well, they have their troubles the same as we do, occasionally.

Mr. Byram: Do their men seem to get along about as well as yours?

Mr. Hewitt: Apparently.

Mr. Park: Are they pretty strong competitors of yours for this business?

Mr. Hewitt: We happen to know it, sir.

Mr. Stone: Now, Mr. Hewitt, coming back to this question of rates. When does overtime begin, or when are the men paid overtime, under your present rule?

Mr. Hewitt: My understanding is that after 10 hours they get overtime; although I am not positive. I could not say, because I have only been in my present position a little over two years.

Mr. Stone: Don't they commence to get overtime before that, Mr. Hewitt? Don't they take the average of all the runs, and overtime after that? I think—I may be mistaken, as I am simply speaking from memory, and have not the last settlement here—I think it is after 8 hours and 14 minutes.

Mr. Hewitt: No. I am quite sure that they do not.

Mr. Stone: Take your men who are assigned to a regular pool, that is, a certain number of assigned runs is assigned to—

Mr. Hewitt: No, sir; no man has an assigned run in suburban service.

Mr. Stone: He is assigned to a certain pool, which means a limited number of runs; is not that so?

Mr. Hewitt: I do not understand it that way. We operate, for instance, we will say on the Alameda Lines, so many trains a day—

Mr. Stone: Suppose you run an extra train; would the man be paid overtime or extra for it, if he made an extra trip?

Mr. Hewitt: I think he would be, yes, sir.

Mr. Stone: I know he would be.

In case one of your pantagraphs should catch or fail to work, then the man must go on top of the car, must he not? He would have to go on top of the car then, would he not?

Mr. Hewitt: Not necessarily. I remember a case, not a great while ago, where a lug broke that held one of the springs in the pantagraph, which caused the pantagraph to collapse. In other words, it did not make contact with the wire, by about a foot or, we will say, 18 inches; and it was impossible for him to do anything; and as he happened to be running on a division where there happened to be a number of trains all coming to make the same boat, there was no time lost, because the next train coupled right onto him and took him on to the pier.

Mr. Stone: When a man does get on top of the car, when he gets to handling that pantagraph up against the wire, his safety depends on the fact that the running board on which he is standing is dry and that his rubber gloves will insulate him, does it not?

Mr. Hewitt: He has no occasion to get on to the roof of the car with the pantagraph up. The rules explicitly provide that if he has occasion to get up on the roof of the car in order to renew any fuse that is up there, he must first lower all the pantagraphs in the train before getting up there.

Mr. Stone: But suppose one of them is caught in some way, or will not lower; then what?

Mr. Hewitt: I have instructed our men and shown them how to meet such an emergency. They can get this same hook that we use in opening the 1,200 volt switches on the equipment and get hold of the bar on the pantagraph and pull it down. That is perfectly safe.

Mr. Stone: I saw a case on the New Haven where when a man pulled it down with one of those long hooks that had a handle four feet or longer—they have a higher voltage, of course; that is perfectly true—and this pole was supposed to be perfectly dry, but it was afterwards pronounced to be covered with carbon dust, and he got the full strength of the voltage, and it threw him over about three tracks.

Mr. Hewitt: Of course, there is an element of danger at all times; but if a man will live up to the instructions that are laid down for his guidance in handling electric equipment, it is just as safe as being in the cab of a steam locomotive.

Mr. Stone: Are you familiar with the practice of the electric locomotives on the Great Northern?

Mr. Hewitt: No, sir, I am not.

Mr. Stone: When you left the New York Central, had the New Haven begun running their double-headers on their passenger trains with that lighter electric locomotive?

Mr. Hewitt: Yes; they had.

Mr. Stone: Is it not a fact that their rules require the fireman to ride in the second locomotive?

Mr. Hewitt: I could not remember that; I really do not know.

Mr. Stone: Coming back to these experienced engineers who are operating in your service, is it not a fact that that is one of the strongest advertisements and one of the most important advantages which the Southern Pacific Railway Company keeps before the public—the fact that their lines are manned by experienced engineers?

Mr. Hewitt: Well, I never heard that exploited to any extent.

Mr. Stone: I see it in their advertisements, every time I pick up even one of these eastern advertisements—that the men in their electric service are all experienced engineers.

Mr. Hewitt: I happen to be in the western territory, Mr. Stone, and I do not see the eastern papers.

Mr. Stone: It is also common talk among the traveling public out there that the Southern Pacific has experienced engineers in charge of their electric service, is it not? It is often talked about in the passenger suburban service by passengers traveling over your line? I think I asked one question in regard to the responsibility of the man with ten cars. You said, in reply to a question put by counsel for the railroads, that there was no more responsibility with ten cars than there was with one—only a different mark to stop at?

Mr. Hewitt: Yes.

Mr. Stone: You are referring solely to the mechanical work of the man?

Mr. Hewitt: That is what I had in mind.

Mr. Stone: Not the responsibility of the man in charge of one of those heavy trains?

Mr. Hewitt: No, sir.

Mr. Stone: I think you spoke about the Pennsylvania having 160 miles for a day. What about the New York Central

and the New Haven, that run more trains that the Pennsylvania ever thought about. What do they have?

Mr. Hewitt: Well, sir, I could not answer that question now.

Mr. Stone: When you were there, what was it? Just the same as the steam, was it not?

Mr. Hewitt: I believe so. Where the miles exceeded the hours, they were paid accordingly.

Mr. Stone: 100 miles or less was a day's work in the steam and the electric, and the seniority was interchangeable, was it not?

Mr. Hewitt: Yes.

Mr. Stone: Is it not a fact, Mr. Hewitt, that every man running out of Oakland, with perhaps the exception of two or three, in passenger service, every pool for men and every extra man, is qualified for the electric service?

Mr. Hewitt: That is my understanding.

Mr. Stone: And you simply call at the roundhouse and they send down a qualified man; and they generally take the first man off the board?

Mr. Hewitt: In the event of requiring a man for electric service, that is the way it is handled.

Mr. Stone: I believe you testified that it was the duty of the motorman or the engineer to replace all fuses while on duty or on the road?

Mr. Hewitt: Yes, sir; that is their duty.

Mr. Stone: There are some fuses in your equipment that require a man to go under the cars, do they not?

Mr. Hewitt: Yes, sir.

Mr. Stone: And there are a few that, if they happen to blow out, require him to go on the roof of the car, are there not?

Mr. Hewitt: Yes, sir.

Mr. Stone: So that the man has to be somewhat of an acrobat, does he not, to get up on top of the cars, and down underneath the cars on the structure?

Mr. Hewitt: The electric service makes acrobats of all of them.

Mr. Stone: It would be a good place for some of our fat engineers then.

And in case the man had to put in one of these fuses that

he carries in his kit, if he did not have any rubber gloves with him, then what? He would have to put it in any way, would he not?

Mr. Hewitt: It is not necessary to use rubber gloves to replace fuses in any circuit.

Mr. Stone: Why do they furnish them, then?

Mr. Hewitt: For use in emergency cases only, such as if the pantagraph should become entangled in the wire in any way, due to a break, and he had occasion to handle this pantagraph. He would then use the rubber gloves, which would make it perfectly safe.

Mr. Stone: It is the duty of the motorman or engineer to go through his train, I suppose, these multiple trains, before starting, to know that all the jumpers are in place and everything coupled up all right? That is so, is it not?

Mr. Hewitt: Yes; and to close the compressor switches on the various motor cars.

Mr. Stone: And the man is held responsible for seeing to all that before starting his train?

Mr. Hewitt: That is true.

Mr. Stone: How long does this take?

Mr. Hewitt: It depends on the length of the train and upon how many motor cars there are in the train.

Mr. Stone: With an ordinary train of ten cars, say?

Mr. Hewitt: I think a man could get over ten cars, both inside and out, in ten to twelve minutes, easily.

Mr. Byram: Is that an ordinary train—ten cars?

Mr. Hewitt: Not in our service, sir. The longest train we have, at any time, and that is for one trip only at nights, is a seven car train, composed of three motors and four trailers.

Mr. Byram: What is the usual size of a train?

Mr. Hewitt: About 80 per cent of our trains run as single motor cars.

Mr. Stone: Do you have a passenger conductor in charge of each one of those trains?

Mr. Hewitt: Yes.

Mr. Stone: That is your standard requirement?

Mr. Hewitt: Yes; that is for suburban service.

Mr. Stone: I am particularly interested in that matter of taking hold of the live rail. I was talking to an animal trainer

the other day, and he said it was perfectly safe to pat a live tiger on the head. You say it is perfectly safe to take hold of a live rail?

Mr. Hewitt: Yes.

Mr. Stone: But you would not recommend it as a general practice, would you?

Mr. Hewitt: In educating a man for that class of service, I surely would.

Mr. Stone: And yet occasionally a man gets badly burned with it just the same, does he not?

Mr. Hewitt: That is under certain conditions.

Mr. Stone: I happened to see one case where a man dropped a steel tamping bar on a live third rail and it fell across the other rail on the track, and for two or three minutes we had all kinds of fireworks.

Mr. Hewitt: It didn't last very long, though?

Mr. Stone: No; but it burned a hole in the rail about two feet long.

Mr. Hewitt: It opened the circuit breaker in the power station. Until that time, the arc continued.

Mr. Stone: Speaking of this matter of failing en route, and the man knowing that there has been a failure. That is something that you cannot teach; that comes by experience, by the "feel" of the train? Is not that so?

Mr. Hewitt: Yes, sir; that is very true.

Mr. Stone: It is a kind of a sixth sense, as you might call it?

Mr. Hewitt: It becomes instinctive, in time.

Mr. Stone: How thick are your trains in the rush hours of the morning and evening, when people are going to work and coming from work across the ferry?

Mr. Hewitt: In the Alameda service, the headway is standard, with the exception of the later night hours, when the trains are run half hourly.

In the Oakland service, the standard headway is twenty minutes; that is, at the present time and under existing schedules.

Mr. Park: Twenty minutes between each train?

Mr. Hewitt: There is twenty minutes between each boat. The service is altogether governed by the boats, you see, the

frequency of the boats; but we have as many as six different lines, all leaving at the same time at the Oakland pier.

Mr. Park: They come into the pier from different directions to meet this boat?

Mr. Hewitt: Yes; from different territories, all making for the same boat.

Mr. Stone: And you think it is a perfectly safe operation with one man on the head end of these interurban trains?

Mr. Hewitt: Speaking of our own equipment, I think it is, yes, sir, with the necessary safety devices that are installed.

Mr. Stone: But if you had a second man there, he would be a valuable help to the motorman, would he not, in looking out for signals and exchanging signals, the same as they require in steam service?

Mr. Hewitt: I cannot agree to that. The poor fellow would freeze to death on a cold night, because there is no room for him in the cab.

Mr. Stone: I think you said you had about 580 trains per day?

Mr. Hewitt: We have something like 820, out of all piers. That is both ways, east and westbound movements.

Mr. Stone: But the one fact remains, that, with this one man on the head end of this inter-urban train, you are often handling more passengers than you do on your through service, are you not?

Mr. Hewitt: You refer to the steam trains?

Mr. Stone: Yes; I refer to the steam trains.

Mr. Hewitt: Oh, yes. There are in the rush hours at night and in the morning, where we are apt to have more passengers per train in the suburban service than the main line steam trains would have.

Mr. Stone: What is the capacity of your cars?

Mr. Hewitt: We have one type of car that seats 116 people; we have another type of car that seats 88.

Mr. Stone: Then, it is possible, in the rush hours of the evening, for you to have 700 or 800 people per train, is it not?

Mr. Hewitt: That is true, sir.

Mr. Stone: It is also true, is it not, that the man in charge of this train has just about the same responsibility, so far as

the operation is concerned, in regard to signals, delays, and so forth, that the man in the steam service has, does he not?

Mr. Hewitt: I agree with that, yes, sir.

Mr. Stone: I think you stated that it would not require the same degree of mechanical knowledge as would be required of the man in steam service. Are we to infer from that that you are in favor of a lower class of intelligence for men operating the electric service?

Mr. Hewitt: I would not say that, no, sir. The more intelligent the man is that we have on the head end of the train, so much the better it is, to my mind?

Mr. Stone: In regard to these hostlers, I think you said you inherited them from the steam service?

Mr. Hewitt: Yes, sir.

Mr. Stone: Is it not a fact that you are using those hostlers in doing what is legitimately known as switching service?

Mr. Hewitt: They do the switching at the terminals, yes, sir.

Mr. Stone: Then why should they not be paid the same as any other motorman?

Mr. Hewitt: That is something I have no comment to make on.

Mr. Stone: The fact remains, does it not, that they are not performing hostlers' duty, but are really doing switching service?

Mr. Hewitt: They do the switching service at the terminals.

Mr. Stone: Mr. Carter wants to ask a few questions.

Mr. Carter: When you were down East some two years ago, Mr. Hewitt, did you ride from Manhattan Junction to the 34th Street station on the motors of the Pennsylvania Railroad, on the electric locomotives?

Mr. Hewitt: I have a friend, an electrical engineer with the Westinghouse Company, who invited me, two days before I left New York to go to California to assume my present duties, to take a ride on the Pennsylvania equipment; and I had the experience of riding from the Manhattan Transfer to the Sunnyside Yard and return on their equipment, riding on the electric locomotive.

Mr. Carter: That is over into Long Island, is it not?

Mr. Hewitt: Yes.

Mr. Carter: The equipment is practically the same between the 34th Street station and Manhattan Junction, is it not? The same equipment is used both ways out of the 34th Street station; is not that true?

Mr. Hewitt: I do not quite understand what you mean by "Manhattan Junction."

Mr. Carter: Manhattan Junction is a point on the Pennsylvania Lines where the steam locomotives are cut off from the through passenger trains and the electric locomotives are attached.

Mr. Hewitt: That is in New Jersey.

Mr. Carter: Yes.

Mr. Hewitt: Well, that is known as the Manhattan Transfer?

Mr. Carter: Yes. Where they transfer trains from steam to electricity. Practically the same electric locomotives are used at both ends, there and out of 34th Street station?

Mr. Hewitt: That is my understanding, yes, sir.

Mr. Carter: Do they have the dead man's button on those electric locomotives on the Pennsylvania Lines?

Mr. Hewitt: I could not answer that question.

Mr. Carter: You did not examine them?

Mr. Hewitt: No, sir.

Mr. Carter: You do not know that this drawing which I have in my hand is something like the dead man's button on those Pennsylvania electric locomotives?

Mr. Hewitt: I did not stand and look at the gentleman at all who was handling the equipment. I was in conversation all the while with this electrical engineer whom I had known.

Mr. Carter: You would not know whether there was a dead man's button on the electric locomotives on the Pennsylvania Railroad, between Manhattan Transfer and 34th Street?

Mr. Hewitt: No, sir.

Mr. Carter: Would you know that there was a helper there?

Mr. Hewitt: On the train that I rode on, they had two men, the engineer and the helper.

Mr. Carter. Did you notice that every signal in the tun-

nel and outside, was called by the helper to the motorman, and repeated from the motorman back to the helper?

Mr. Hewitt: That is what transpired on my ride on this train.

Mr. Carter: Do you know that that is a rule strictly applied by the Pennsylvania Railroad?

Mr. Hewitt: I do not know that to be the rule, no, sir.

Mr. Carter: That is all.

RE-DIRECT EXAMINATION

Mr. Sheean: Do you know, Mr. Hewitt, whether or not they have a second man on their multiple unit trains, motor cars on the Pennsylvania?

Mr. Hewitt: I never rode on any electric multiple unit trains in the territory of New York City, but I have had the pleasure of a ride on one of their trains from Camden to Atlantic City, over what is known as the West Jersey and Seashore Railroad, which is general electric multiple unit equipment, operated by one man in the cab.

Mr. Sheean: Then, Mr. Hewitt, do you know anywhere in this country where the multiple unit train is being operated on which they have two men in charge of the motor?

Mr. Hewitt: Not in my experience, or that I ever read or heard about.

Mr. Sheean: And you stated here that this suburban service now operated electrically is just the same service that was formerly operated by steam?

Mr. Hewitt: That is, in California?

Mr. Sheean: Yes, in the territory where you are operating now?

Mr. Hewitt: The identical territory. Any more than they have opened a few extra lines since electrifying.

Mr. Sheean: But, with the substitution of that electricity for steam in that suburban service, you have operated, since 1911, with the one man or the engineer who is qualified?

Mr. Hewitt: One man only.

Mr. Sheean: And there has never, at any time, been any fireman who formerly operated in that steam service, employed in connection with the operation of those trains?

Mr. Hewitt: As the second man?

Mr. Sheean: As the second man.

Mr. Hewitt: No, sir.

Mr. Sheean: And in no part of the country, in the operation of similar service, whether it be the New Haven, the New York Central, the Pennsylvania, or elsewhere, in the operation of multiple unit trains, do you know any practice where the second man is or has been employed?

Mr. Hewitt: I never heard of it, sir.

Mr. Nagel: When you receive a new man who wants to be examined and instructed for the service on your road, would you rather start with a man who has had experience with the handling of electric apparatus, and knows nothing about signals in railroad service, or vice versa?

Mr. Hewitt: I would sooner have a man who understands signals and railroad rules.

Mr. Park: Are you able to get up on these cars yourself? Do you get up there frequently?

Mr. Hewitt: Sure. In qualifying a man I take him up there.

Mr. Park: You get on the cars personally?

Mr. Hewitt: Yes, sir, get right under with him.

Mr. Park: You don't have any difficulty in getting up?

Mr. Hewitt: Absolutely none. I may add that of the many hundreds of men whom I have qualified in my lifetime for electrical equipment, I have never known yet of any one who was ever shocked into insensibility, much less electrocuted.

Mr. Park: How long does it take this natural timidity to wear off in the service?

Mr. Hewitt: Well, I have seen a man in service about a year, who would go and light a cigarette on a light switch. He would open the switch sufficient to draw an arc, and put his cigarette in and light it, or take a piece of paper and light it.

Mr. Stone: You do not recommend it for general practice, do you?

Mr. Hewitt: I would not, no; but they do it just the same.

Mr. Park: They have to have some excitement?

Mr. Sheean: That is all.

Mr. Stone: I think it is a fact, Mr. Chairman, that all men who daily deal with dangers, become either calloused, or hardened, or something. I have seen men handling dynamite as un-

concernedly as if it were brown sugar, and I would not have gone anywhere near it and done what they were doing, and yet they seem immune, and I think that is perfectly true with these men who are daily dealing with this heavy electrical current. They get so they become calloused.

Mr. Hewitt: Every once in a while you hear of a man sneaking a quiet smoke in a powder mill, too.

Mr. Stone: I have nothing more to say.

Mr. Shea: But you would not recommend that?

Mr. Hewitt: No, sir.

Mr. Sheean: That is all.

The Chairman: It is so near the hour of recess we will take an adjournment now until 2:30.

(Whereupon, at 12:25 o'clock P. M., a recess was taken until 2:30 o'clock P. M.)

After Recess.

Mr. Sheean: Mr. Clewer, come forward and be sworn, please.

HARRY CLEWER was called as a witness, and having been duly sworn, testified as follows:

DIRECT EXAMINATION

Mr. Sheean: Your name is Harry Clewer?

Mr. Clewer: Yes, sir.

Mr. Sheean: Where do you live, Mr. Clewer?

Mr. Clewer: Chicago.

Mr. Sheean: What is your occupation at the present time?

Mr. Clewer: Superintendent of locomotive operation.

Mr. Sheean: For what railroad?

Mr. Clewer: Rock Island.

Mr. Sheean: How long have you been with the Rock Island?

Mr. Clewer: About twelve years.

Mr. Sheean: What has been your experience in railroad work?

Mr. Clewer: Well, since about 1888—

The Chairman: Will you kindly speak a little more distinctly, please?

Mr. Clewer: Since 1888 I have been employed as locomotive fireman, locomotive engineer, road foreman of engines, roundhouse foreman, master mechanic and superintendent of locomotive operation.

Mr. Sheean: Well, you experience has all been with the Rock Island, has it?

Mr. Clewer. No, sir.

Mr. Sheean: Where did you have previous experience?

Mr. Clewer: With the Kansas City, Osceola & Southern, and the Chicago & Alton.

Mr. Sheean: And the last twelve years, you have been with the Rock Island?

Mr. Clewer: Yes, sir.

Mr. Sheean: Since you have been with the Rock Island, what positions have you held there?

Mr. Clewer: Engineer, roundhouse foreman, road foreman of engines, master mechanic and superintendent of locomotive operation.

Mr. Sheean: Are you a member of either of the Brotherhoods?

Mr. Clewer: Yes, sir.

Mr. Sheean: Which one?

Mr. Clewer: The Brotherhood of Locomotive Engineers.

Mr. Sheean: Now, are you familiar with the general situation of the Rock Island, with reference to the handling of its engines, between the time of arrival at the terminal, on the completion of one road trip, and the starting out on another road trip?

Mr. Clewer: Yes, sir.

Mr. Sheean: Have you ever had supervision over the work of hostlers, or hostler helpers, or the force which care for an engine between its arrival and departure?

Mr. Clewer: Yes, sir; in my position as roundhouse foreman and master mechanic.

Mr. Sheean: At what point or points on the system?

Mr. Clewer: Forty-seventh street, Chicago, and Ft. Worth, Texas.

Mr. Sheean: Now, in a general way, Mr. Clewer, give us some idea as to what is done in practical railroad operation be-

tween the time that an engine comes in from a road trip and the time that it starts out on another road trip.

Mr. Clewer: Would that refer to the duties of the hostler?

Mr. Sheean: Well, we had some difference here as to what is a hostler's work, and I want you, first, to tell us just what the work is that is done in connection with an engine, excluding any question of repairs, but an engine that comes in from a road trip, and between that time and its starting out on another road trip.

Mr. Clewer: The locomotive is surrendered at the herding track by the engineer coming in and there is taken charge of by the hostler, who will take that engine from that point to the cinder pit, and after the fire is disposed of, he will put the engine on the table and take it into the roundhouse, after it is turned. Then, after the engine has been prepared and ordered for service again—

Mr. Sheean: Now, prepared; we laymen don't understand just what there is to be done, physically, in preparing.

Mr. Clewer: Preparing the locomotive would include the necessary running repairs, as reported by the engineer; probably boiler washed out, flues worked and other necessary running repairs that have been reported will be cared for.

The engine will then be ordered for service again. The hostler will take the engine out, across the table and to the coal dock. There he will give it a tank of coal and a tank of water and a box of sand and deliver the engine to the herding track, where it is received by the outgoing engine crew.

Mr. Sheean: In this intermediate time between the time that it goes into the roundhouse and the time that it goes out of the roundhouse on the next trip, what is done on the incoming trip? Are the fires knocked?

Mr. Clewer: Yes, sir.

Mr. Sheean: Well, then, in getting it ready for the next road trip, just describe all of the work that is done.

Mr. Clewer: The necessary work, as I said before, in the way of running repairs is taken care of in the roundhouse. The engine is fired up by the fire builder, and after this has been done in sufficient time so that there shall be at least 100 pounds boiler pressure in time to take the engine out to take up these

other duties, filling the tank with coal and water, it is then delivered to the outgoing engine crew.

Mr. Sheean: On the Rock Island system, is the practice just the same at all points as to just the number of men or the division of work between incoming and outgoing uniform, as between your outlying points on branch lines and your points at a large terminal?

Mr. Clewer: They vary.

Mr. Sheean: They vary in what manner?

Mr. Clewer: Well, the number of engines handled at the terminal points varies, and the existing conditions in and about the terminals vary greatly, which makes it a varying proposition from a hostling or engine handling point of view.

Mr. Sheean: On your system, take, for purposes of illustration, some of the busier points and some of the lighter points, and describe what you actually do there?

Mr. Clewer: Well, take 47th street; that is one of our largest and most important passenger terminals on the system.

Mr. Sheean: That is 47th street, Chicago?

Mr. Clewer: Yes, sir.

Mr. Sheean: Now, just describe how you handle the work on the incoming engine from the time it comes in to the time it goes out, at 47th street?

Mr. Clewer: The passenger power is moving inbound in the morning more by 40 or 50 per cent than it is in the outgoing in the morning. However, there are a number of those passenger engines that terminate at that terminal anywhere whom 8 to 8:30, leading up until 1 P. M., coming in after the completion of the trip. There are also a number of passenger engines that go out during the morning that have to be handled by the forces; and the switch engines that are turned out in the morning are also to be handled, so that it will range about 55 engines a day, handled at that point.

Mr. Sheean: How do you subdivide the work there as between the spotting and firing, and knocking and turntable work and fire building duties, and so forth?

Mr. Clewer: Well, we have the hostlers on duty that take the engines from the herding track up to the cinder pit. If the other hostler can keep up his work, that is as far as he will

handle the engine, on the work between the herding track and the cinder pit, while the other hostler will handle it from the cinder pit into the house. That is the other hostler's work.

Mr. Sheean: At that particular point then, if the business permits there, you have a hostler taking it from the herding track down to the cinder pit?

Mr. Clewer: Yes.

Mr. Sheean: Then he leaves the engine there and goes back to the herding track for another engine?

Mr. Clewer: Yes.

Mr. Sheean: Then, after the fire is knocked at the cinder pit, another hostler takes the engine into the roundhouse?

Mr. Clewer: Now they won't work that out to that line all the time. It may be that an outside man, or rather the hostler who will work between the cinder pit and the herding track, he will take them into the house also.

Mr. Sheean: Then on the outgoing work at 47th Street, getting that same engine out, what is done?

Mr. Clewer: Well, the hostler will bring the engine out of the house; spot it on the turn table there, turn it and put it on the outgoing track. It is customary, when they bring them out of the house to dump the pan on the outgoing cinder pit. Then the engine is coaled, watered and sanded, and put over on the herding track, where it can be received by the engineer and fireman going out.

Mr. Sheean: Now, at this point, while the engine is in the roundhouse, between the incoming and the outgoing trips, what is done to the engine? I mean, outside of any question of repairs. Is there a wiping or a cleaning, or anything of that sort, of the engine?

Mr. Clewer: Oh, yes, all of that follows. They are wiped and cleaned up.

Mr. Sheean: And, at this particular terminal, you have another force or set of men who look after the wiping, inside?

Mr. Clewer: Yes.

Mr. Sheean: And then what with reference to the furnishing of supplies or doing any lubricating at this point?

Mr. Clewer: Well, that is done by the roundhouse force, insofar as the packing of boxes is concerned, filling the grease cups; but the supplies that are given the engineer are handled to

and from the engine by a supply man, including his tool equipment.

Mr. Sheean: That is, you have a supply man at 47th Street?

Mr. Clewer: Yes, sir.

Mr. Sheean: And you have roundhouse forces, who simply do nothing other than the matter of wiping, inside of the roundhouse?

Mr. Clewer: That is right.

Mr. Sheean: Now, give us an illustration of how work is done at less important points on the line?

Mr. Clewer: Well, at a smaller terminal, we expect and get about all of that work done by the hostlers. For example, at a smaller point, where there are very few engines handled, the hostler will assist in the knocking of the fire, and at some point does all of the fire knocking, and he will take coal, and will assist in sanding up the engine, and perform other duties in the care of that engine, and will also, in a good many cases, do considerable wiping on the engines.

Mr. Sheean: Well, now, supposing you take a less important point, an actual point upon your system, not so important as to permit of such subdivision as 47th Street. Tell us what is done there?

Mr. Clewer: I can recall one point in particular, Cameron Junction, where that man will handle one engine regularly.

Mr. Sheean: Where is Cameron Junction?

Mr. Clewer: That is fifty miles west of the terminal point of Trenton, on the Missouri Division, at the junction point where we take joint track with the Burlington Railroad.

Mr. Sheean: Now, there is one engine there that operates on this branch?

Mr. Clewer: Regularly.

Mr. Sheean: One engine regularly?

Mr. Clewer: Yes, sir.

Mr. Sheean: Well, what do, or what does the man do there in connection with that one engine that is handled regularly?

Mr. Clewer: Well, he is about all we have got there. In fact, he does all of the necessary work to be done on that engine. He handles it. Such as shoving the coal ahead, cleans the fire ash pan, and puts the engine into the house, fires it up again in the morning, gets it ready for its run. Now, if there happens to

be any light repairs needed to that engine that he can do, he will do it.

Mr. Sheean: Does he move the engine under steam?

Mr. Clewer: Yes.

Mr. Sheean: In just what way, at that point?

Mr. Clewer: Well, he will handle the engine from the point where it is surrendered by the engineer to the cinder pit. There he will clean its fire ash pan, run her across the table and into the roundhouse.

Mr. Sheean: That comes in at a regular time each day, and out again?

Mr. Clewer: Well, they have their regular schedule, yes.

Mr. Sheean: And then during the rest of the day, when the engine is away?

Mr. Clewer: That is during the night.

Mr. Sheean: During the night?

Mr. Clewer: Yes.

Mr. Sheean: Well, he does that during the night?

Mr. Clewer: Yes.

Mr. Sheean: And is there any other work he does except the care of that one engine?

Mr. Clewer: That is all, unless an extra engine should tie up at that point, and that frequently occurs.

Mr. Sheean: Now, are there other points on the Rock Island where the work is done of moving an engine under steam part of the day, and the rest of the day filled out in other work?

Mr. Clewer: Yes.

Mr. Sheean: Tell us some of those, and how the work is done there.

Mr. Clewer: There is one point, at Graham, Texas, we have an engine watchman at that point, who has two engines to care for every night. He will clean the fire on the freight engine, coal it up and clean the ash pan; will clean fire on the passenger engine; shovel the coal ahead; clean its ash pan, and take care of those two engines the rest of the night.

Mr. Sheean: Do the shop forces at any point on the Rock Island, do work in connection with the preparation or care of engines, and handle them under steam for movements, and do other work at other matters than the mere handling of the engine?

Mr. Clewer: Well, there is some part of them do. In other words, there are not any of the machinists or boiler makers that do any of that work in moving engines.

Mr. Sheean: They are covered by an agreement as to what their work is?

Mr. Clewer: Yes.

Mr. Sheean: What I am trying to elicit is whether or not, on any part of the system, you have men that may be engaged for a half hour or an hour a day, in moving an engine under steam, and during the rest of the day perform other duties?

Mr. Clewer: Yes, sir.

Mr. Sheean: Tell us some of those points?

Mr. Clewer: We have a point at Bureau on the Illinois Division. We also have another point at Peru.

Mr. Sheean: Just describe what the work is at those points?

Mr. Clewer: At those points they may have one locomotive in there during the day, to handle. The rest of the day they are performing other duties.

Mr. Sheean: Can you give us some idea what the spread of those duties are?

Mr. Clewer: Well, they are doing anything about the place, in the way of keeping it clean, and looking after any work that might be there to do. If they should have a locomotive tied up at that point that is not under steam.

Mr. Sheean: Have you examined, Mr. Clewer, this information assembled as to the Rock Island, in the Form 42?

Mr. Clewer: Yes, sir; I have looked it over.

Mr. Sheean: I want to say in that connection, if the Board please, that a form that I was partially responsible for has assembled information on all the roads, designed to cover the spread of duties on different parts of the different roads, but under the instructions as given, some of the roads that manifestly made a mere cost distribution of certain employes, who are shown by the reports themselves as not having actually handled the throttle on engines at all times; but for the information of the Board, we would like to file this, and also for the information of counsel, but with the explanation that it is manifest upon the face of some of the reports that in this distribution of the time, they have included the names of some men,

where it is shown that they do not actually handle the throttle; but speaking generally, that is shown on the face of the report itself, so that it might be understood that we did not intend by these forms, having discovered those results, to give the impression that each and all of the men whose names appear on the report did, at some time of the day, actually handle the throttle on the engine; and we will ask leave to file those reports of the different roads.

Mr. Stone: Mr. Sheean, I would like to ask a question. Does this report cover such men as Mr. Green of the Louisiana & Arkansas testified to?

Mr. Sheean: It was the purpose, Mr. Stone, in sending out—and I think, perhaps, by way of explanation I will just hand one of the forms to you, so that we may make that clear, that it was the purpose of the form in asking for the information, to endeavor to ascertain the rates and duties of all employes who moved engines under steam, between time released by engineer and firemen inbound, and time of delivery to engineers and firemen outbound, including all who regularly devote the whole or any part of their working time to such work, but under the instructions as to the distribution of their time, where they work one hour in this work, and some hours in other work, it is manifest, from the columns here shown, that the names of some men appear on the list of practically all the roads, where they do not, in fact, handle the engine under steam, but that is shown by Columns 1 and 2, I think, in each case, but it was the endeavor to show as to that particular road, Mr. Stone, and we will turn to that Louisiana & Arkansas now. Mr. Burch, can you easily lay your hand on the Louisiana & Arkansas report?

Mr. Stone: I simply asked the question, Mr. Chairman, because Mr. Green testified that if he had a machinist that was only five minutes moving an engine, he would show him at one-twelfth of an hour at machinist's pay.

Mr. Sheean: This (indicating) is the report sent in by that road, as to the distribution, the way they are at the present time at these different points, and how their time is distributed, and you will note that as to some of them—

The Chairman: Mr. Sheean, are these offered as evidence?

Mr. Sheean: No; these, your Honor, we desire to file simply for the general information of counsel and the Board, if the

Board desires to refer to them, not making them formal exhibits, but filing them in the same way information has been filed as to other matters; and I made this statement so it might be clear that there was, through my error, in the form of the instructions, certain names on almost every road where the report itself shows that no part of their time was actually employed in the handling of the throttle, but in each case the names would show those who do at any time move the engines, under steam.

Mr. Carter: I would like to ask counsel for the railroads if he could make this a permanent record of this arbitration.

Mr. Sheean: We have not other copies. I presume that could be done, and they could be filed here.

Mr. Carter: It is a very important record, and I would like to have it made permanent, if possible, Mr. Chairman.

The Chairman: Under the rule which has been ordered, to make it a part of the record there will have to be two copies, I believe.

Mr. Sheean: That can be done, although I think probably if the paper could be filed here, and remain here during the hearing, any copies you might want could easily be obtained without unnecessary—

Mr. Carter: To be perfectly frank with you, Mr. Chairman, I will need it more after the hearing than during the hearing. I anticipate that if this Board makes a favorable award to hostlers, that the work that is here shown will be greatly changed hereafter, and we want this to be of record as to what they have been doing in the past; and we do not want the hostler to be bound in the future by adding more work to him. It is a very important record. We are willing to pay for it in order to get it as a permanent record.

Mr. Sheean: It is not any question of pay, Mr. Carter. If it is desired to have extra copies made and filed, so as to make them exhibits, that can be done. I was simply suggesting that with these remaining here, the actual copies could be furnished you, certified or O. K.'d, or in some other way than that, without unnecessarily encumbering the formal record here.

Mr. Carter: If I may be permitted, Mr. Chairman, I wish to say that we will assume all the burden of responsibility for safe keeping, and responsibility for expense, if we can have these photostated.

Mr. Sheean: Or, I imagine we could make the copies of them and furnish the copies.

Mr. Carter: I would prefer to have them photostated.

Mr. Sheean: We simply file them at this time as a matter of information; and if, in the protection of any of your rights, it is thought desirable to make them a formal part of the record, we will co-operate in doing that. At the present time we will leave them in the custody of the Secretary of the Board in the same manner that other papers have been left.

Mr. Carter: Mr. Chairman and gentlemen: The reason that I attribute great importance to this exhibit is, that while we only demand or contend that engineers and firemen shall be relieved of hostling duties, and a regular hostler installed, where six or more engines are handled, we do contend that whether there be one or six, or whatever number there may be, that they be treated in the same manner and be paid at the hostlers' rate. We contend that because in the past a hostler may have been required to do other duties, to perform other duties than hostling, instead of tending to reduce his wages, if it has any effect at all, it should increase his wages. We have said that if there is a man today, in addition to the hostling duties, doing other work, we are not asking for a change in that practice; and here, I understand, is an exact report of what the practice is today. Is that true, Mr. Sheean?

Mr. Sheean: That is what we intended; but you will note, as I have explained, that the instructions of the committee were apparently a little misleading on distribution, and that in some cases they have included men who do not actually handle the engine under steam; but that was an endeavor to show a picture of just what is done in the handling of an engine.

Mr. Carter: If I may have that permission—

Mr. Sheean: Surely.

Mr. Carter: I will put men right to work to photostating, and I will file one copy, or two copies, if necessary, as a permanent record with this Arbitration.

The Chairman: It will be necessary to file two, I believe.

Mr. Carter: Would you like to have someone go with my men, Mr. Sheean?

Mr. Sheean: Not at all. You can take these papers after we get through with them here.

Mr. Carter: Yes; I am talking about when you finish with the witness.

Mr. Sheean: Yes. And let it be understood, Mr. Milstead, that while any of these papers are in your custody, we have not the slightest objection to Mr. Carter or Mr. Stone having them at any time for compilation, tabulation or comparison, or photostating, or anything else they may desire.

Mr. Carter: I would prefer, however, that you would have some representative with my representative, to see that it was done correctly.

Mr. Sheean: We will be absolutely satisfied with your statement that they are photostatic copies.

Mr. Carter: When you get through with them, then, I will take them and have them photostated.

Mr. Byram: I would like to get it clear as to just what you mean, Mr. Carter, by the statement you made a few moments ago, that in the case of a hostler who now has other duties, the practice shall not be changed. Does that apply to the individual who now holds the position, or to the position?

Mr. Carter: To the position.

Mr. Byram: It applies to the position?

Mr. Carter: Yes, sir.

Mr. Byram: Where it is now the custom? May I ask it in this way: where it is now the custom of the railroad company to require a hostler to perform certain other duties, that position will still continue to carry those duties with it?

Mr. Carter: Mr. Byram, we have made no request as to what the duties of hostlers shall be. We have accepted the practice as at present, and have attempted to fix uniform rates of wages for them. We have contended, however, that because you have only one or two engines to hostle, and in order to keep that man busy you give him other work, that should not disqualify him from drawing a hostler's pay; because he is not only a hostler, but he is something else in addition to that.

Mr. Byram: I understand just what you mean; but in your remarks you had confined your statement to a certain man.

Mr. Carter: To the position.

Mr. Byram: As I understand it you mean the position?

Mr. Carter: Yes.

Mr. Byram: Where the other duties go with that position, they still continue without any objection?

Mr. Carter: Yes.

Mr. Sheean: Mr. Carter, as I understood your cross-examination, if, at any point, on any of these railroads, a man for ten minutes a day handled an engine under steam, and for the other nine and a half hours, if he was a ten hour a day man, he was engaged in any other work, such as pumping the gasoline engine, or anything else, that man, because of his ten minutes work as a hostler, must take, for the entire day, the hostler's pay?

Mr. Carter: I said any man who performed services as a hostler should be entitled to a hostler's pay, even though he does a great deal of work in addition to that. I will say this much, however; that if the railroads had six men at a given point doing this indiscriminate work, we would not insist that you should not change the method of handling these men, and make of the six men, say three hostlers and three fire builders, for instance; we would not object to that at all.

Mr. Sheean: But, take the case of a point such as has been referred to by Mr. Clewer, such as he has just talked of, and if the man handled the engine under steam for ten minutes each day, his rate for all the work that he might do during the rest of the day is fixed by the fact that during that time he moved an engine under steam, and he must take a hostler's pay for the entire day.

Mr. Carter: I will say yes, with the explanation that it is inconceivable that a man at a point as described by Mr. Clewer, should move an engine for ten minutes and then leave it. At a point as described by Mr. Clewer, it is inconceivable to me that a man should handle an engine for ten minutes and then leave the engine to take care of itself the rest of the 24 hours. Someone is there to take care of it, and if you have one man to take care of it and another man handle it, we would not object to having the same man take care of it who handled it. It is inconceivable, Mr. Chairman, that a man at an outlying point would move an engine for ten minutes and then leave the engine to shift for itself, perhaps burnt, or the water get too low, so that you would have to kill it—it is inconceivable that such a condition would exist.

Mr. Sheean: Now, Mr. Clewer, will you just run over some

of the points shown on this Form 42 of the Rock Island, and give us the spread and duties of the different men, the way it is handled at different points? You have already told us about 47th Street, Chicago, and some of the other points. By the way, before we go to those in detail, can you tell us of some point where the man just moves the engine a very short time each day?

Mr. Clewer: Yes, sir.

Mr. Sheean: Tell us what that point is.

Mr. Clewer: Bureau is one point where there is very little engine handling done.

Mr. Sheean: Ordinarily what is done there? There is the one engine a day?

Mr. Clewer: Well, it probably will go from one to four and five engines a day; but the engines will be brought in there and surrendered by the engineer on the track leading to the cinder pit. The hostler will move that engine probably 150 feet, and that is all that he will move that engine until she is again delivered to the engine crew, and the engine crew will take that engine from that point.

Mr. Sheean: What does this man at Bureau do during the rest of his day that he is not moving that engine this 150 feet?

Mr. Clewer: He is a general utility man; he does anything that there is to be done about that terminal within the terminal premises, in the way of cleaning up; he shovels cinders, and he does any other work that is assigned to him by the foreman at that point.

Mr. Sheean: By the way, is that 150 feet that he moves this engine on the main line?

Mr. Clewer: No, sir.

Mr. Sheean: So that he would not be, under this proposition, a main line hostler?

Mr. Clewer: No, sir.

Mr. Sheean: Will you run through, just rapidly, some of the points and the wide spread duties, and rates of pay, to meet the different situations? I do not care about Chicago. You have told us about that.

Mr. Clewer: Take this man at Peru. There we have a foreman at $80 per month. We also have a hostler at that point.

working twelve hours per day, at $58 per month. That constitutes the force at Peru.

Mr. Sheean: Take the foreman: what time does he ordinarily put in a day in the matter of handling engines? And what does he do the rest of his time?

Mr. Carter: Where is this, Mr. Sheean?

Mr. Sheean: Peru, Illinois.

Mr. Clewer: This fellow puts in one hour handling engines and in and out of the house; one hour handling engines on and off a cinder pit; the rest of his time is put in there, in simply supervising that terminal point. That is the foreman.

The hostler, working twelve hours at $58 per month, has one hour's time chargeable to moving engines in and out of the house, and he also has one hour charged to handling engines on and off the cinder pit. He has ten hours of miscellaneous work, or any other work—any light duties about that terminal that the foreman may assign to him to do.

Mr. Sheean: Give us some of the other variations in practice. You have given us the two extremes here, of the highly specialized work at Chicago, and then you have gone down to a small point here near Chicago. Give us some of the intermediate stations, as shown on this, or you may have knowledge of them irrespective of this report.

Mr. Clewer: The next heaviest point is at our freight terminal at Blue Island, fifteen miles out.

Mr. Sheean: Does the practice at Blue Island differ from the practice at 47th street in the way that you subdivide the work?

Mr. Clewer: It is about the same as at 47th street. Brooklyn, Iowa, is handled on about the same line as Bureau, any further than that they handle more engines at Brooklyn than they would at Bureau. That is a regular freight terminal, Brooklyn.

Mr. Sheean: And about how many trains are there there, how many engines handled there?

Mr. Clewer: They will handle at Brooklyn about 325 to 330 locomotives a month.

Mr. Sheean: So that is a "point where an everage of six or more locomotives are handled within twelve hours a day or

night, hostlers will be maintained." Now, tell us what they do out at Brooklyn at the present time, how that work is handled.

Mr. Clewer: Well, those hostlers handle the engine to the cinder pit and to the water crane, and take care of them during their stay at that point, for the reason that they are not handled across the table and into the roundhouse, for the roundhouse is too small to accommodate the class of power used in that territory. So that these hostlers will turn that power, clean its fires, give it water, and herd it, or take care of it, until it is delivered to the engineer for an outgoing trip.

Mr. Sheean: And what are they paid out there?

Mr. Clewer: At Brooklyn they pay $52 per month.

Mr. Sheean: How many are there there?

Mr. Clewer: There is a foreman and a hostler. There are two hostlers, by the way.

Mr. Sheean: And does the foreman also move the engine under steam at the time?

Mr. Clewer: Yes, sir, he does.

Mr. Sheean: What is his pay?

Mr. Clewer: Let us see if he is shown there. He is not shown on here and I do not know what his pay is.

The Chairman: What duties did you say the hostlers perform at this place?

Mr. Clewer: They knock the fire, clean the ash pan, turn the locomotive, and take care of it until it is delivered to an engineer for an outgoing trip.

The Chairman: How many times a day does he handle an engine?

Mr. Clewer: How many engines a day?

The Chairman: Yes.

Mr. Clewer: We will handle—they will handle in the neighborhood, I should say, under normal business, about 15 locomotives.

Mr. Park: Are these men firemen or engineers, or have they been?

Mr. Clewer: No, sir, they are men that are hired for that work, or, in other words, brought up through the ranks.

Mr. Park: How long does it take to educate a man to handle an engine, under those conditions?

Mr. Clewer: Well, if a man is a bright, apt sort of a fellow,

he will acquire the ability to handle a locomotive safely, in a short period of time. That would depend altogether upon the aptness displayed by the fellow.

Mr. Park: What do you mean by short length of time; a week or ten days?

Mr. Clewer: Oh, no; it would run into months.

Mr. Park: He would work around the engine, as a wiper and roundhouse man, for one or two months, before he would become competent?

Mr. Clewer: Yes.

Mr. Park: Is there any set time for a man entering the service that way, or new to the service, that he is restricted to the handling of the engine, or is that the judgment of the foreman?

Mr. Clewer: Well, we do not allow the helpers to handle an engine, or any man to handle an engine about a terminal point, other than the foreman and the hostlers for that purpose.

Mr. Park: What I was getting at was the time the hostler qualifies to handle an engine. How long is he in the service, and how long do you educate him?

Mr. Clewer: Well, it is possible a man will be working about the roundhouse for a period of two or three months. He is taken out and placed as a hostler's helper. He is probably in that position two or three months. If he is a good, bright, apt fellow, he picks the work up very quick and becomes qualified to handle a locomotive.

Mr. Park: What did you commence at?

Mr. Clewer: Engine watchman.

Mr. Park: How long before you handled an engine? Do you remember how long it was before you handled an engine, after entering the railroad service?

Mr. Clewer: When I was put on as engine watchman, I was qualified to handle the engine, if necessary.

Mr. Park: Did you handle an engine before that?

Mr. Clewer: I did, yes, sir.

Mr. Park: What was your employment before that?

Mr. Clewer: I had been employed as a machinist's helper and we handled our own engines.

Mr. Park: That is, at the roundhouse?

Mr. Clewer: Yes, sir.

Mr. Park: How long had you been in the service, before you handled an engine as a machinist's helper?

Mr. Clewer: I could not say positively, but I should say it was a period of five to six months.

Mr. Sheean: Just what were the steps, now, Mr. Clewer? I have not that clearly in mind. You went to work first for the railroad company, as what—a wiper, did you say?

Mr. Clewer: I went to work as machinist's helper.

Mr. Sheean: Where was that?

Mr. Clewer: Clinton, Missouri.

Mr. Sheean: Then what were the steps before you got to be a hostler or a hostler's helper?

Mr. Clewer: There, the machinist's helper was—it was a small road, and they did not carry any extra engineers or firemen; so during this period that I was in that shop, I was used as an extra fireman. After the regular engine watchman's position became vacant, they sent me down there to do that work, and I was employed as engine watchman for a period of a few months, prior to being promoted to firing.

Mr. Sheean: Then the position of engine watchman that you occupied there, was one in which you had a part of the time each day to move an engine, under steam?

Mr. Clewer: I moved the engine, yes, sir.

Mr. Sheean: But that was not all the work you did do?

Mr. Clewer: Oh, no.

Mr. Sheean: Then, with you, that was an intermediate step to becoming a fireman?

Mr. Clewer: Yes, sir.

Mr. Sheean: And on the Rock Island, at the present time, are the hostlers selected from the ranks of the engineers or firemen, exclusively?

Mr. Clewer: No, sir; not exclusively.

Mr. Sheean: From whom are they generally recruited?

Mr. Clewer: Well, we make our hostlers from the employes at the terminal point. That is, we get our hostler helpers from the roundhouse; we will usually take an employe, a bright young fellow, if you can get him there, as a helper in the roundhouse, or a wiper, and we will then advance him to hostler helper, with the intentions of making him a hostler, if he, of course, remains in the service of the company.

Mr. Sheean: Now, tell us about this intermediate step of hostler helper. You have not described that, just what a hostler's helper does?

Mr. Clewer: Well, that helper is the fellow who takes the water, throws the switches, and spots the engineer on the turntable, and opens the doors at the roundhouse, and also spots him under the jack when he brings the engine into the roundhouse.

Mr. Sheean: So that, as the hostler makes these moves to the coal chute or the water tank, the hostler's helper is with him and doing the physical work of getting the water in? Does the hostler's helper do that?

Well, that differs, I suppose, at different points, too, does it, as to whether he physically manipulates the pen stock, if there be one, or whether that is done by somebody else?

Mr. Clewer: Well, the hostler's helper does not do any pumping of the boiler, but he will take the water for the hostler.

Mr. Sheean: That is, put it into the tank when the stop is made?

Mr. Clewer: Yes, sir.

Mr. Sheean: And on the Rock Island, after a man, usually recruited from the roundhouse force, has served his time as a hostler's helper, he then becomes a hostler?

Mr. Clewer: Yes, we then advance him to the position of hostler. Now, that depends upon whether or not we have any other one for that position. Now, we take care of and do put as hostlers on our line, engineers and firemen who have become disqualified for road service. In other words, if they meet with an accident that will bar them from road service, we will put them in the positions as hostlers, so that we do not make all of our hostlers from the roundhouse force.

Mr. Sheean: Have you found this method and manner of recruiting your hostler forces from the roundhouse, when you are building them up and also filling places for disabled firemen and engineers, a satisfactory one?

Mr. Clewer: Entirely so.

Mr. Sheean: Now, in connection with the work around the roundhouse or as a hostler's helper, do you think that they

acquire an experience there that enables them to perform the duties of a hostler properly?

Mr. Clewer: Yes, sir. For the reason that we have a young man working around the place there becoming perfectly familiar with all the surrounding conditions at that terminal, both night and day, and he knows every move that is made in the handling of the power. Then, after he goes out there as hostler's helper, he becomes more familiar with the conditions, and it makes him a very fit man to advance to the position as hostler.

Mr. Park: Would he be a more competent man than a fireman who has never been around the roundhouse?

Mr. Clewer: Well, I wouldn't say more competent, no, sir. But I would say that he is probably better acquainted with the terminal point, or the existing conditions at that terminal than a fireman would likely be.

Mr. Park: Is it essential that he should have a knowledge of all these things within the roundhouse?

Mr. Clewer: Yes, it is.

Mr. Park: How long does it take him to get all that knowledge as a hostler?

Mr. Clewer: As a hostler?

Mr. Park: How long as a roundhouse man does he work before he qualifies as a hostler?

Mr. Clewer: Well, we don't take a man out of the roundhouse and make a hostler of him. We put him in the position of hostler's helper; there we give him the necessary education to advance him to the position as hostler.

Mr. Park: How long does that take, on the average?

Mr. Clewer: Well, we can use a man as a hostler's helper after he has been in the roundhouse two or three months.

Mr. Park: Then he would be just as competent, do you think, as a fireman?

Mr. Clewer: I think he is just as competent, yes, sir.

Mr. Sheean: And you think that his training around the roundhouse—by training, I mean his acquiring knowledge of the situation, conditions as to location of turn-table, and the cinder pits, and the herding tracks, and location of all the switches, gives him greater knowledge as to things that it is material for

him to know than one who has been brought up in those surroundings?

Mr. Clewer: Yes.

Mr. Burgess: Pardon me, Mr. Sheean. Did I understand you, Mr. Clewer, to state that it would take two or three months to qualify a man from the roundhouse for hostler's helper, or helper? Which did you say?

Mr. Clewer: The question was asked—

Mr. Burgess: You were answering Mr. Park's question. I did not get it quite clear.

Mr. Clewer: He was asking me, as I understood it, about the hostler's helper.

Mr. Burgess: Yes.

Mr. Clewer: And I said that we usually would take a man who had worked about the roundhouse two or three months, and place him as a hostler's helper.

Mr. Burgess: That is what I understood you to say. I just wanted to be sure.

Mr. Sheean: Then, after being a hostler's helper, what length of time as a helper would an ordinarily bright and intelligent man be kept before he qualified to be a hostler?

Mr. Clewer: Well, that would depend, Mr. Sheean, as I said. Possibly he would acquire that knowledge in two to three months. He would be perfectly safe to handle a locomotive. One might do it in less time, and another would take longer.

Mr. Sheean: The human equation is there at all times?

Mr. Clewer: Certainly.

Mr. Park: Do you think he would be perfectly safe at the end of that probation?

Mr. Clewer: If he was so recommended by the hostler.

Mr. Shea: Mr. Clewer, did you ever make firemen out of hostler's helpers, and other employes around the shop?

Mr. Clewer: Yes, sir.

Mr. Shea: They go out firing, and then it is possible that the hostler's helper, or man who worked around the roundhouse will eventually get back into the position of a hostler again, would he not? That is, if the firemen have these positions?

Mr. Clewer: Well, that might occur.

Mr. Shea: It is a line of promotion, is it not; they go from hostler's helper and handy man around the shop to fire-

man, and from fireman to hostler, and hostler to engineer, and engineer to road foreman of engines?

Mr. Clewer: No, sir, that is not our system.

Mr. Shea: Well, I thought you said they do promote hostlers' helpers and other men to the position of fireman.

Mr. Clewer: Yes, but we don't make our firemen out of the roundhouse forces.

Mr. Shea: I understood you to say you did. I understood you to say you made firemen of men who served as hostlers' helpers and other men who worked around the shop.

Mr. Clewer: No, I didn't say anything about firemen, no, sir.

Mr. Shea: Oh, I understood you did.

Mr. Sheean: Well, Mr. Clewer, along the line that Mr. Shea was just inquiring about, assume that on a road where they did go through the steps of hostler's helper, and then whether they went to firemen or first went to the position of hostler, and then of fireman, do you think it is an important matter that the hostler in and about a yard—that you should have the same individual because of his knowledge and familiarity with that place, or, instead, one exercising seniority, a part of the time on the road and part of the time in that particular place?

Mr. Clewer: I think it is very necessary that we have permanent men at our terminal points handling and caring for the power.

Mr. Sheean: Well, now just tell us why you think that is essential or necessary.

Mr. Clewer: For the reason that our hostlers, where they are permanently employed, become more familiar with the conditions in and about that terminal. They know the time of arrival and departure of all the engines in and out of that terminal. They are perfectly familiar with all the surrounding conditions, both night and day, in the handling and caretaking of the power at that terminal, which would have to be taught any new man coming in to fill the position.

Mr. Park: Would that not apply to a fireman, as hostler, who had not been employed around the roundhouse; if he were used in that capacity he would not be familiar with all those things?

Mr. Clewer: No, he would not.

Mr. Sheean: And in case you had to make changes, even though recruited from the ranks of the firemen, having one on the road part of the time, and then getting another man from the road, would constantly upset the work in and about these terminals, you think?

Mr. Clewer: It interferes with the work about the terminal, inasmuch as under conditions of that kind you would have a hostler not so familiar with the conditions about that terminal.

Mr. Burgess: Can I ask one question?

Mr. Sheean: Surely.

Mr. Burgess: It is a fact, then, Mr. Clewer, that the position of a hostler is a very important position, isn't it?

Mr. Clewer: I don't think so.

Mr. Burgess: Well, if it is almost impossible to recruit from the ranks of firemen, it would seem that it is a very important position, according to your statement.

Mr. Clewer: I have not said that it was impossible to recruit from the ranks of the firemen.

Mr. Burgess: No, but you stated it would be very much preferable not to do so, if I understand your answer correctly.

Mr. Clewer: I said by having a permanent man as a hostler, he would be more familiar with the conditions, and, to explain myself, we would get a higher efficiency at that point than we would by constantly changing men in that position.

Mr. Sheean: That is, Mr. Clewer, there is nothing about the fact that a man is a fireman that disqualifies him for that position, but in order to perform it as well as your present force does, he must, in addition to his knowledge as a fireman on the road, acquire a knowledge of the local conditions.

Mr. Clewer: Exactly.

Mr. Sheean: Now, even on the one railroad, is it feasible to have the same conditions, same duties, performed by those who handle engines at different points, to arrange your work on an iron clad rule of what the hostler shall do at one point? Have that same rule apply to all of the points on your railroad?

Mr. Clewer: That would not apply, Mr. Sheean. A fast rule laid down just what the performance of the hostler, regardless of his duties, shall be, at each individual terminal, would be entirely impracticable.

Mr. Sheean: Do you have some of these points where the

roundhouse foreman does some of this work of moving the engine under steam?

Mr. Clewer: They do do it, yes, sir.

Mr. Sheean: Can you give some of the points, or are they given in form 42?

Mr. Clewer: They are. At any small point especially, or in fact at any of the terminals, the roundhouse foreman will move an engine occasionally.

Mr. Sheean: And the Rock Island has a very large percentage of branch lines operated as branches, I believe?

Mr. Clewer: Yes, they have a good many.

Mr. Sheean: What is generally done on these branch lines, or is there any absolute rule or practice by which you can determine just what a particular man is to do, applicable to all the cases, between the time the engine is laid up on one trip until she goes out on another, or is that handled locally, to meet the peculiar conditions?

Mr. Clewer: That is handled locally at each of those points.

Mr. Sheean: Do the wages and rates they pay differ at the different points, so as to measure up to the different service performed at the different places?

Mr. Clewer: They do.

Mr. Sheean: Now, I think, Mr. Clewer, you told me of having some colored men who acted as hostlers somewhere. Where is that?

Mr. Clewer: At Little Rock and Ft. Worth.

Mr. Sheean: Just what do those men do there?

Mr. Clewer: Well, the hostlers at Little Rock handle the locomotives just in and out of the roundhouse, and they also take care of the locomotives that are herded at the terminal. They will shovel coal off the back of the tank forward, and they will knock fires, clean ash pans, in fact do any work about that terminal that is assigned to them, when they are not engaged in handling locomotives.

Mr. Sheean: And at the other point?

Mr. Clewer: Ft. Worth?

Mr. Sheean: Yes, what do they do there?

Mr. Clewer: The hostler knocks the fire, handles the locomotive over the table, and into the roundhouse, and when not handling engines assists in shoveling the cinders from the pit,

and any other light work about the terminal there, such as keeping the premises clean, gathering up scrap, or any other light duties about the roundhouse that he may be asked to, on the outside.

Mr. Sheean: Now, on the Rock Island then, some of the men are on a monthly salary, where their work covers a variety of duties, a small part of which may be on each day the handling of an engine under steam.

Mr. Clewer: Yes.

Mr. Sheean: For some small distance, or for varying distances, on different parts of the system. Do you find a like dissimilarity of conditions on other roads, as well as on the Rock Island. That is, I mean varying on different parts of the same railroad, to meet the local conditions in different parts of the same railroad?

Mr. Clewer: I understand that that is the practice on several of our other roads.

Mr. Sheean: You have gone through, in a general way, these Forms 42, and what, in a general way, do you find as to a variety of practices on the same road? Mention a few instances.

Mr. Clewer: I find that the Burlington, the Santa Fe, the Soo Line, the I. C., the North Western are practically the same as our system.

Mr. Sheean: That is, that at important terminals you may be able to specialize your work, so as to find for a hostler at a busy terminal no other work than the handling of the engine under steam, and at other points, in addition to or in connection with that, he may do the work of cleaning the fire, working about the cinder pit, taking coal and water, and doing the spotting of the engines?

Mr. Clewer: Yes.

Mr. Sheean: At still smaller points he may do all of the work, all of the physical work in connection with one or two engines that he handles between the time that they come in on one trip and the time they go out on another?

Mr. Clewer: Yes.

Mr. Sheean: Filling in his spare time, the rest of his day's work in small duties around the roundhouse, in connection with the pump, or in connection with sweeping out the station, or anything, and you find that variation in regard to duties on the

same railroads, to meet local conditions at different points on the road?

Mr. Clewer: Yes.

Mr. Park: Now, if you used a fireman by reason of seniority, could you get all of that general utility work out of him?

Mr. Clewer: Well, if he is hired as a hostler, under our present system, he would do it.

Mr. Sheean: And, generally speaking, on these roads, are these forces recruited from the roundhouse through the medium of hostlers' helpers, except where the places are filled by disabled engineers or firemen?

Mr. Clewer: Yes, that seems to be their general practice.

Mr. Sheean: Now, if this proposal is granted here, this article 10, or any substantial part of it, what becomes of the opportunity of these men in the roundhouse department, who now work up through the position of hostlers' helpers to that of hostler?

Mr. Clewer: Well, that avenue for their advancement would be closed.

Mr. Sheean: From your knowledge of the situation on the Rock Island, and this variation in practice as it exists there, do you think it is feasible to lay down a hard and fast, or standard rule that will meet all of the conditions on this one railroad?

Mr. Clewer: No, sir, I don't think that it is possible.

Mr. Sheean: They run from with in the spread of this highly specialized station that you have at 47th street, clear down to the cases on the branch lines, where there is a single engine to care for between trains?

Mr. Clewer: That duty varies so that you could not lay down any hard and fast rule to govern. It is a condition that has got to be handled locally for the best results.

Mr. Sheean: At some of these points—well, at the point that you speak of these colored men doing the work, do they make any part of the main line movement there?

Mr. Clewer: Yes, sir.

Mr. Sheean: How far?

Mr. Clewer: I should say almost three miles.

Mr. Sheean: At which of those points that you speak of, is that?

Mr. Clewer: That is at Little Rock.

Mr. Sheean: And in addition to the taking of those engines over that three miles of main track, they put in the rest of their day on other work?

Mr. Clewer: Yes.

Mr. Sheean: About how much of their time per day is there in this actual moving of the engine under steam?

Mr. Clewer: I couldn't say positively the number of passenger engines that they handle between Little Rock and Biddle, but approximately I should say four engines over and four back. I would not be positive on that point.

Mr. Sheean: How many are there there, Mr. Clewer?

Mr. Clewer: Of the hostlers?

Mr. Sheean: Yes, of the hostlers.

Mr. Clewer: There are two of those hostlers to handle those engines.

Mr. Sheean: Is that work satisfactorily performed by them?

Mr. Clewer: Entirely so.

Mr. Sheean: And how long have they been doing that?

Mr. Clewer: Well, about six or seven years, possibly longer.

Mr. Sheean: But you have knowledge of their doing that work for that length of time?

Mr. Clewer: I know they have been at that work six or seven years.

Mr. Byram: Did I understand you to say, Mr. Clewer, that your understanding of this Article 10, which provides that hostling positions shall be filled from the ranks of firemen, would close to the roundhouse employes, who now are promoted up to the position of hostler, that avenue of promotion?

Mr. Clewer: Yes, sir.

Mr. Byram: It would be necessary, according to your understanding, that the roundhouse foreman should remain a roundhouse employe, who now has this promotion open to him, to the position of hostler, or that he would have to begin firing first, to do some firing before he could be a hostler?

Mr. Clewer: Yes.

Mr. Byram: He would, then, have to go out on the road and fire and come back as a hostler, as you understand it?

Mr. Clewer: Yes.

Mr. Byram: And if he was not able to qualify as a fireman, he could not leave the roundhouse and be promoted?

Mr. Clewer: No, sir.

Mr. Byram: Then these colored men who are working at the place you spoke of would not be able to get into these positions as hostlers where they are now; that is, other men?

Mr. Clewer: No, sir.

Mr. Byram: That promotion would be closed to them because they could not become firemen?

Mr. Clewer: Yes, sir.

Mr. Sheean: In your busier terminals, at what period of the day or night do the hostlers ordinarily have the most work to perform?

Mr. Clewer: From 11 A. M. and up to 2 P. M.; and from 11 P. M. up to 2 A. M.

Mr. Sheean: Is it practicable or possible, in your judgment, to have the same meal hour rule fixed for hostlers that is fixed for the switching crews?

Mr. Clewer: No, sir.

Mr. Sheean: Tell us why that is.

Mr. Clewer: Because the engines turn in there any time from 11, 11:30, 12, 12:30, up to as late as 2 o'clock for fire cleaning, to be turned back into service again; and that is a very busy hour for the hostlers and cinder pit forces.

Mr. Sheean: And is that in practical operation—is the meal hour that the switch crews take, when they take it, ordinarily utilized by the hostlers or roundhouse force, in connection with any work on the engine? That is, does the roundhouse force do anything around or about the engine, at the time that the switch crew is relieved for the meal hour, in case they do take their meal hour?

Mr. Clewer: That is, do the mechanics in the roundhouse—

Mr. Sheean: No; the hostlers.

Mr. Clewer: Yes, he takes care of that locomotive. He is preparing that locomotive for turning back into service again, during the time the engine crew is taking their meal hour.

Mr. Sheean: So, one of the busiest times for the hostlers in the terminals, is the time designated for the meal hour for the switching forces?

Mr. Clewer: Yes.

Mr. Sheean: Can you have a hard and fast rule, territorially wide, on all parts even of the one system of the Rock Island, as to the time for the meal hour, or can that be best arranged, in your judgment, to meet the local conditions at the particular point?

Mr. Clewer: That is met and handled locally and is the most satisfactory method.

Mr. Sheean: How long did you act as an engine watchman or a hostler, or do any of this work?

Mr. Clewer: Well I, have hostled, after I was promoted to engineer, in emergency cases, for a period of one, two and three nights.

Mr. Sheean: But the work as engine watchman, I think, comprised, as a part of your duty, this handling under steam, at a terminal?

Mr. Clewer: Yes.

Mr. Sheean: Have you any time had any experience with the changing or shifting about of hostlers, going into road service and coming back into hostling service, or has the practice that you have described here always been the practice that yau are familiar with, having this separate avenue of promotion?

Mr. Clewer: That is the only practice that I am familiar with, that which I am talking from.

Mr. Sheean: Is there, in your judgment, objections to departure from that practice, entirely separate and distinct from wages? Are there objections, from a practical standpoint, that might result from the shifting from road service to this hostler service and back and forth?

Mr. Clewer: I should say that there is.

Mr. Sheean: Tell us why you think so?

Mr. Clewer: I should say, at a busy point, or any terminal point, or at any point where engines are handled, that it is more satisfactory to have permanent men who are caring for those locomotives and hostling, than it would be to be constanly changing and putting in new men, who are not so well acquainted with the conditions, and that you can utilize these men, under our present practices, for other work that we want to assign them to, notwithstanding the fact that we would get just as high efficiency from an engineer or a fireman in performing this duty, as

we would under our present practices, but our present practices are entirely satisfactory in every way.

Mr. Sheean: And are you enabled to make the rates of pay, the actual payment made to the different men, adjust themselves to the work required at these different points, where the duties vary from one point to another?

Mr. Clewer: Yes, sir; that is handled locally.

Mr. Sheean: Now, Mr. Clewer, have you ever had any experience in the handling of an oil burning locomotive?

Mr. Clewer: Yes, sir.

Mr. Sheean: Where and when?

Mr. Clewer: At Fort Worth, on what is known as the Southern Division. It is known as the Chicago, Rock Island & Gulf. We changed from coal to oil burning locomotives—I would not be positive, but I think about the commencement of 1911.

Mr. Sheean: Where were you located and what was your duty or work at the time this change was made?

Mr. Clewer: I was located at Fort Worth, as master mechanic.

Mr. Sheean: And did you have anything at all to do with the work, in connection with the substitution of the one way of making power for the other?

Mr. Clewer: I had nothing to do with the installation of the oil apparatus, but I did have all to do with the handling of that power, when it was transferred to me as an oil burner.

Mr. Sheean: And after it was transferred to you, did you become familiar with the method and manner of the operation of it?

Mr. Clewer: I had had that experience prior to the oil burners coming to that territory.

Mr. Sheean: Where had you had that experience?

Mr. Clewer: I had learned that feature of firing on one of our oil burning motor cars.

Mr. Sheean: Then when the change was made at this point —you were located at Fort Worth, did you say?

Mr. Clewer: Fort Worth, Texas.

Mr. Sheean: Did you have anything at all to do with the instructions to the firemen at the time the change was made?

Mr. Clewer: I rode every one of those engines and in-

structed in the proper handling of the atomizer and firing of the locomotive, in oil.

Mr. Sheean: I wish you would describe what an oil burner is, where it is located and how it is actually manipulated on the oil burner?

Mr. Clewer: Well, an oil burning locomotive has oil for fuel instead of coal. The burner is located at the front of the fire box, on some roads; other roads will locate the burner at the back of the fire box, under the fire box door. Ours, however, was located at the front of the fire box. We have a suitable fire wall within that fire box that the oil from the burner is forced against this brick wall. That holds in position the oil and gives it its turn back. That is forced there by a jet of steam, that joins the oil at the burner, or, in other words, is atomizing the oil to the fire box.

Mr. Sheean: What does the fireman upon an oil burner do, with reference to keeping up his fire?

Mr. Clewer: The fireman will get an engine on the herding track delivered to him with near maximum boiler pressure and his fire just burning. In fact, the fire is turned down, until it is just ignited, and that is the position that it would be left in—the condition the locomotive will be left in for the fireman. When he comes to the engine, he will increase that fire box firing, as the engine is handled.

For example, a man comes over to a herding track on an oil burning locomotive. If, for some reason, the engine has been herded on that track and the fire extinguished, the fireman will restart the fire.

Mr. Sheean: Tell us what he does on restarting?

Mr. Clewer: First, he will put on the blower, to insure that there are no gases within the fire box; after he has used the blower for a sufficient length of time to satisfy himself, in his judgment, that any gases that might be there, due to a leakage of oil on the hot brick, have disappeared, he will then leave his blower on lightly: he will turn on the jet of steam that he atomized with the oil, in order to throw any condensation out of the pipe and burner that might have accumulated there. He will then turn his oil valve on very lightly, lighting a piece of waste and throwing it up against the burner.

Mr. Sheean: That is, throwing it into the fire box?

Mr. Clewer: Yes.

Mr. Sheean: After the fire is started—and ordinarily I understand that the fire is started and some pressure brought up and that the engine is put on this herding track—the fireman comes to take charge of this engine for a road trip; how does he manipulate his fire? What does he have to do instead of shoveling coal, when he wants more fire?

Mr. Clewer: Well, he hasn't anything to do, other—

Mr. Sheean: He wants to get up more steam. Other than what?

Mr. Clewer: If the fire is now lighted and burning very low, which is the instructions to the hostler, to leave the fire in that condition, he will simply increase the flow of oil and increase the atomizer to the burner.

Mr. Sheean: How does he increase the flow of oil?

Mr. Clewer: He has a fire valve right at his hand, and all he has to do is to turn that slightly to the right.

Mr. Sheean: What is the shape or dimensions of this fire valve? What does it look like?

Mr. Clewer: The little quadrant on the boilerhead is sort of that shape (indicating). This fire valve is over here (indicating), and it is a little lever working on this quadrant. This is full of fine teeth, so that he can graduate the opening of the plug cock in the oil feed pipe to his heater pipe.

Mr. Sheean: The oil valve which goes down into the pipe has a handle, I would call it.

Mr. Clewer: It is called a fireman's firing valve.

Mr. Sheean: About what is the length of this part that he takes hold of to turn or adjust it upon the quadrant?

Mr. Clewer: The handle of it is about eight inches.

Mr. Sheean: And it is set on a ratchet or with teeth?

Mr. Clewer: Yes.

Mr. Sheean: So that he can change that along the quadrant, leaving it stand, if he wants to leave it at any particular point, when the flame is right?

Mr. Clewer: Yes, sir. It is adjustable. He can set it at any given point on this quadrant and it will remain there until unlatched and moved again.

Mr. Sheean: Then, if his pressure comes down at any time,

the work of the fireman is to loosen this ratchet and move it over to give it a little more fire?

Mr. Clewer: That is the idea.

Mr. Sheean: If he wants to lower his steam, he must go through the work of unloosening this ratchet and moving it back to cut down the supply a little bit?

Mr. Clewer: To increase his fire he will move the valve to the right. That increases the flow of the oil to the burner. To decrease the flow of the oil to the burner he will push it back to the left, closing it off.

Mr. Sheean: Aside from this work of moving this valve back and forth, what other physical work is there for the fireman on the oil-burning engine?

Mr. Clewer: He has to sand the flues out occasionally, and take water; and that consists of his duties, as far as manual labor on the locomotive is concerned.

Mr. Sheean: In taking water the operation is the same as taking water on a coal burning engine?

Mr. Clewer: Yes.

Mr. Sheean: And sanding out the flues: Tell us how that is done; what that really consists of.

Mr. Clewer: The first thing that the fireman will do after the engine is moved out onto the train for leaving the terminal —and sometimes I have seen them perform the duty before the engine gets to the train—is this: He will put in about two or three ordinary scoops of sand into a funnel, possibly a quart and a half or half a gallon of sand at a time; he will take it out of the box and put it into the funnel and wiggle it like that (indicating) while the engine is working, carrying this sand through the flues, to loosen up and take out with it any carbon that might have accumulated there while the engine was being fired up in the roundhouse.

Mr. Sheean: This funnel is provided to put into what would be the fire box, or into the fire box?

Mr. Clewer: There is a small opening in the fire box door that has a little drop cover that he pushed to one side, and he puts his funnel in there, in the fire box door, he puts his sand in the funnel like that (indicating), wiggles it and lets it go to the flues, and the exhaust of the locomotive carries the sand

through these flues, cutting out the carbon that has accumulated during the time the engine was fired up in the roundhouse.

Mr. Sheean: In connection with this regulation of the supply of oil by moving this oil valve, does the fireman have any duty to perform that gets him down or requires him to look into the fire box?

Mr. Clewer: Not necessarily.

Mr. Sheean: How does he ascertain whether or not his fire is burning properly, and whether he is doing his part of the work?

Mr. Clewer: He will fire the engine according to the pressure on the gauge, and some of them will watch their stack, but a good oil-burning fireman will fire his engine according to the pressure, not by the stack.

Mr. Sheean: That is, where the engineer on the other side of the cab brings down the pressure in any way by his manipulation of the engine, the fireman brings it up by the adjustment of the valve?

Mr. Clewer: He will follow the engine in his performance. Whenever the engineer is taxing the engine to further energy, he will increase the firing to meet up with that condition. As it decreases he will reduce his fire.

Mr. Sheean: Well, then, on these oil burning engines, Mr. Clewer, is there any different work for the fireman to perform on one that weighs 140,000 pounds on drivers than on the one that weighs 170,000 pounds on drivers?

Mr. Clewer: No, sir.

Mr. Sheean: Is there any way, other than the movement of this valve along this ratchet, in which he changes the fire that he makes, or the amount of steam that he produces by the use of that fire?

Mr. Clewer: No, sir.

Mr. Sheean: And the fuel itself is supplied simply through this oil valve?

Mr. Clewer: Yes, sir; but he operates, of course, the atomizer, the steam jet down to the oil at the burner connection. Those two work together, this oil valve and his atomizer or steam jet that he atomizes the oil into the firebox with.

Mr. Sheean: Do I understand that by atomizing it in this way you throw it in to a heated box?

Mr. Clewer: Into a spray; he sprays it, puts it into the box in a spray.

Mr. Sheean: So that there is just a mass of flame in this box?

Mr. Clewer: Yes; that is the idea exactly.

Mr. Sheean: Then, in your observation with the locomotives of different weights on drivers, you know of no difference in the work of the firemen which changes because of a change in the weight on drivers, on oil burners?

Mr. Clewer: No, sir.

Mr. Park: On an oil burning engine is it customary to take oil at some intermediate station?

Mr. Clewer: We do not.

Mr. Park: Do they get a sufficient supply at the terminals?

Mr. Clewer: Yes.

Mr. Park: How frequently does it occur that the oil feed hose has to be taken down on the road?

Mr. Clewer: Never, on our line.

Mr. Park: That seldom, if ever, occurs.

Mr. Clewer: We never had any trouble of that kind with our engines.

Mr. Sheean: What is this oil feed hose made of?

Mr. Clewer: It is metallic.

Mr. Sheean: Just describe its general construction.

Mr. Clewer: It is just merely a piece of gas pipe with a ball joint, what they call a Greenlaw joint. That is what we use.

Mr. Sheean: Where does that run—from the tank to where and in what way?

Mr. Clewer: Between the tank and the engine; it makes the coupling between the tank and the engine for the flow of oil to the heater.

Mr. Sheean: And that on all the engines that you have had any familiarity with was made of metal?

Mr. Clewer: Yes, sir.

Mr. Sheean: You never knew of any uncoupling on the road of this so-called hose?

Mr. Clewer: No, sir.

Mr. Sheean: By the way, Mr. Clewer, did you make any of the observations with reference to the time firemen con-

sumed in the shoveling of coal on heavy type engines, about which Mr. Tollerton testified the other day?

Mr. Clewer: No, sir, I did not make any of those tests.

Mr. Sheean: Have you made similar observations at any time?

Mr. Clewer: I have, yes, sir.

Mr. Sheean: In what way, or on what road?

Mr. Clewer: On our own line I have watched the performance and fuel consumption on our locomotives, while passing over the various divisions.

Mr. Sheean: But you did not, personally, make any of the observations on any of these runs about which Mr. Tollerton testified last week?

Mr. Clewer: No, sir.

Mr. Sheean: I think that is all.

CROSS EXAMINATION.

Mr. Carter: Mr. Clewer, at Bureau Junction, is it not a fact that the foreman usually handles the engine there?

Mr. Clewer: He does do some engine handling.

Mr. Carter: Couldn't he do all that has to be done, if there are so few engines there?

Mr. Clewer: I would not say that he could, in connection with his other duties.

Mr. Carter: Are there not sometimes four or five engines at Bureau?

Mr. Clewer: There are.

Mr. Carter: I understood you to say, Mr. Clewer, that the class of labor usually employed by these railroads as helpers around roundhouses can acquire sufficient skill to be a hostler in two or three months?

Mr. Clewer: You misunderstood me.

Mr. Carter: What did you say?

Mr. Clewer: I said that a hostler's helper would acquire that knowledge within two or three months.

Mr. Carter: Does the Rock Island do like other roads often do, and employ men that cannot speak the English language as hostlers' helpers?

Mr. Clewer: I do not know what the other roads do, but I do know that we do not draw the line on the nationality.

Mr. Carter: If you owned an automobile that cost, say, one-third of the cost of a locomotive, would you permit it to be operated by a man of this character?

Mr. Clewer: I have not any knowledge of an automobile. I do not know what it would require to handle one.

Mr. Carter: Let us presume that you are going to get one.

Mr. Clewer: But I am not.

Mr. Carter: Will you not join me in a presumption?

Mr. Clewer: No.

Mr. Carter: It would not do to do that, would it?

Mr. Clewer: I don't know anything about an automobile, and I could not speak intelligently.

Mr. Carter: I want to say, Mr. Chairman, as the witness would not answer, that there is no railroad official owning an automobile costing $5,000, perhaps, one-third of the cost of a locomotive, that would permit the class of labor that this man says is competent to handle locomotives, to handle an automobile.

Mr. Park: I have had a colored chaffeur for two or three years.

Mr. Carter: Is he a competent man?

Mr. Park: I think he is. He seems to run the machine all right, and to take good care of it.

Mr. Carter: I want to say, Mr. Chairman, that the color line does not have any bearing on this wage business.

I understand that Mr. Park has fifty per cent of the firemen south of the Ohio River colored men. I understand he pays them the same wages and gives them the same treatment as the white men; and there never has been any objection to treating those colored men just as fairly and paying them the same wages as anybody else. Because a man is colored has no bearing whatever, as far as I can see, upon this Arbitration.

Do you think, Mr. Clewer, it is safe practice to trust these expensive locomotives in the charge of the men you have described here?

Mr. Clewer: Why, they are giving us excellent service.

Mr. Carter: Is not that about what the employers said with regard to using the same class of service for running stationary engines?

Mr. Clewer: I could not answer that.

Mr. Carter: I will say, Mr. Chairman,—if you will pardon me for answering—the condition he described is about the same condition that existed in stationary practice until the state had to step in and require stationary engineers to have a license. The reason I rise to answer is because I want an answer, even if I have to answer it myself.

I have found that we cannot get answers when we ask questions. They do not know anything. If the other side is asking a question, yes or no is out of their mouths almost before the question is asked.

You do not know anything about the class of engineers that were used on these tug boats in this river here until they enacted a law requiring them to pass an examination, do you, Mr. Clewer?

Mr. Clewer: I do not.

Mr. Carter: And you do not know that some roads require hostlers to have several years' experience as firemen before they can serve as hostlers, do you?

Mr. Clewer: I do not know.

Mr. Carter: You do not know that the Rock Island has a book of instructions, issued over the signatures of W. J. Tollerton, assistant general superintendent of motive power, and F. O. Melcher, general manager, do you?

Mr. Clewer: Yes, sir.

Mr. Carter: Have you ever seen this book?

Mr. Clewer: Yes, sir.

Mr. Carter: Don't you circulate these books around among the firemen?

Mr. Clewer: Yes.

Mr. Carter: Don't you believe the firemen should acquire the knowledge set forth in this book?

Mr. Clewer: I don't doubt it, in the world.

Mr. Carter: I see in your preface here, among other things, you say:

"Firemen in line of promotion to enginemen and in continuous service one, two and three years, will be required to correctly answer at least three-fourths of each year's questions, respectively. Except as provided below, three months further time will be allowed for posting in event of failure.

"Firemen failing the first time on the third year examina-

tion will forfeit the rights for better runs and promotion for a period of six months.

"Firemen failing the second time on the third year examination shall lose his run and take the position of junior fireman on the regular freight list.

"Firemen failing the third time on the third-year examination shall resign."

I note you have here in this book 378 questions on mechanical examination: Does that not qualify a fireman for a responsible position?

Mr. Clewer: If he answers those questions satisfactorily, he is qualified to become a locomotive engineer on our line.

Mr. Carter: Would he not be qualified to serve as a hostler?

Mr. Clewer: He certainly would.

Mr. Carter: Do I understand you to express the opinion that a man qualified to be an engineer is not any better than one of these people you described as being there three or four months, and possibly not speaking the language?

Mr. Clewer: I didn't say that you could not get as high efficiency by obtaining your hostlers from the rank of engineers and firemen as by what our present practice is.

Mr. Carter: Could not get any higher, I understood you to say?

Mr. Clewer: I said you would get no higher efficiency. I want to say, however, that our present practice is just as satisfactory as we could ever hope to have it, if we did obtain our hostlers from the ranks of engineers and firemen.

Mr. Carter: And particularly if it cost a little money, it would be more satisfactory under present conditions, would it not?

Mr. Clewer: I have not anything to say about the compensation paid.

Mr. Carter: Has the Rock Island a rule preventing firemen handling engines, without the direction or consent of the engineer?

Mr. Clewer: They have not.

Mr. Carter: Do you permit firemen to handle engines, without the instruction or the consent of the engineer?

Mr. Clewer: No, sir.

Mr. Carter: Now, after a fireman has qualified, by answering these 348 questions, and taking him out of service if he cannot do it, you do not permit the fireman to handle engines, without the consent of the engineer, do you, and yet you take these men that you have been talking about and say that they are entirely competent to handle engines. Is that consistent?

Mr. Clewer: I have not said, Mr. Carter, that a fireman was not competent to handle a locomotive.

Mr. Carter: Yes, Mr. Clewer, but if a fireman, with all his experience, after having passed the examination, both physical and mental, and having been required to answer all these questions, or he will have to leave the service, and then not permit him to handle an engine on the road, without the consent or direction of the engineer, does it not indicate that it is unsafe to permit locomotives to be in the hands of incompetent persons?

Mr. Clewer: No, sir; we do not allow anybody to handle our engines promiscuously.

Mr. Carter: A fireman would not be permitted to handle a locomotive, no matter how competent he was, without the consent or direction of an engineer, and yet you say it is perfectly satisfactory to have this class of labor you have just described as hostlers. That is safety first, on the Rock Island, is it?

Mr. Clewer: Are you talking about handling an engine at a terminal point, starting and stopping it, or are you talking about running a locomotive on the road, by the fireman?

Mr. Carter: I am talking about handling an engine. For instance, suppose it is a local train, and the brakeman cuts the engine off, and the fireman takes the engine and goes down to take water. Is that not in violation of the practice of the Rock Island Road, unless the engineer instructs him to do so?

Mr. Clewer: It certainly is.

Mr. Carter: Notwithstanding he has passed this rigid examination, maybe three years' experience as a fireman, after that, you still say it is safe to have a man, who, perhaps, has only been around there a few months, and never had any experience, to go on and assume the entire responsibility of handling these engines?

Mr. Clewer: I do not consider that it requires but very

little ability for a man to be able to start and stop a locomotive, at a terminal point, with safety.

Mr. Carter: Is there any difference between a terminal point and an intermediate point?

Mr. Clewer: It would not make any difference where it was. He could perform it equally as well.

Mr. Carter: You say you ran an engine a good many years?

Mr. Clewer: Yes, sir.

Mr. Carter: You believe it is safe for a locomotive to be placed in the custody of a man, as incompetent as we have described here, attending to the water—seeing that the water is kept in the boiler and not getting low?

Mr. Clewer: I have not considered that we have a man in our employ as a hostler, that is incompetent to keep sufficient water in the boiler, and take care of the fire, as it should be taken care of. We don't have incompetent men.

Mr. Carter: I understood you to say that if these hostlers' helpers were not permitted to hostle, they would be cut off from that employment. Is that true?

Mr. Clewer: Yes, sir.

Mr. Carter: Suppose you permitted them to fire your locomotives, as they do on many roads, take those men and make firemen of them first, would that be any great inconvenience to them?

Mr. Clewer: Oh, no.

Mr. Carter: Suppose they got the wages that some of these governors get, as sent out from the newspapers here, would that be an accommodation to these helpers, if they got those wages before they fired?

Mr. Clewer: Well, I should say that it would be quite an accommodation, if they got that compensation.

Mr. Carter: Could not these hostlers' helpers be promoted to the position as firemen, and let them fire and then let them become hostlers?

Mr. Clewer: We do that. That is, we promote them oftentimes to the extra board, firing, and there they remain until they become engineers.

Mr. Carter: Did I understand you to say that the North Western Road did the same as the Rock Island?

Mr. Clewer: Yes, sir.

Mr. Carter: You do not know then, that on the North Western Road they have a regular schedule of wages for hostlers?

Mr. Clewer: No, sir; I do not know that.

Mr. Carter: You do not know that they require a certain amount of service, as firemen, before they can become hostlers?

Mr. Clewer: No, sir; I do not know what their conditions or requirements are.

Mr. Carter: With regard to these colored men there, running on the main line a distance of three miles between Little Rock and some point down there—

Mr. Clewer: Yes, sir.

Mr. Carter: Are they required to pass this examination in this book, like firemen do?

Mr. Clewer: They are supposed to be examined on transportation rules.

Mr. Carter: Well, are they?

Mr. Clewer: I could not answer that question.

Mr. Carter: I understand they have been there some time?

Mr. Clewer: Yes, sir; they are handled by a positive block.

Mr. Carter: Don't you think that if the safety of the passengers and general public was considered first in that territory, they would not permit a colored man, who has but little knowledge of railroading, to handle locomotives on the main line, a distance of three miles?

Mr. Clewer: It could not be any safer than it is at the present time, because the operation is in the hands of a competent transportation man, examined on the rules.

Mr. Carter: Is he always on the engine?

Mr. Clewer: No, sir; it is not required that he be on the engine.

Mr. Carter: Who is he?

Mr. Clewer: He is a train despatcher and an operator.

Mr. Carter: Where does he stay?

Mr. Clewer: In his office at the depot, at Little Rock.

Mr. Carter: Where does this colored hostler stay?

Mr. Clewer: At Biddle.

Mr. Carter: How far is that from the despatcher, up in the office?

Mr. Clewer: I should say that he was about three miles, to the best of my knowledge of that locality down there.

Mr. Carter: You think at that distance he could keep this hostler from getting in the way of a passenger train and causing a wreck?

Mr. Clewer: He certainly can.

Mr. Carter: He can?

Mr. Clewer: Yes, sir; he is operating a positive block.

Mr. Carter: You do not consider then that it is any danger to the traveling public, to allow any such person as that to operate on the main line?

Mr. Clewer: I certainly don't think there is a bit of danger in that operation at Little Rock.

Mr. Carter: I can well understand, if you take that attitude toward that man, why you take the attitude you do toward the man that has only been there two or three months. How many engines do you say these colored men handle, on this main line, a distance of three miles?

Mr. Clewer: I did not say how many, but to give you a positive answer on that, it would be necessary to check the Arkansas Division time card. Approximately four engines to Biddle and four engines from Biddle to Little Rock.

Mr. Carter: About how many trains are running through there at that time?

Mr. Clewer: About that number, four in each direction.

Mr. Carter: Do you know anything about two trains, Trains 41 and 42?

Mr. Clewer: I have knowledge of them running there.

Mr. Carter: Do you know anything about trains 43 and 44?

Mr. Clewer: No, sir.

Mr. Carter: Do you know anything about trains 671 and 672?

Mr. Clewer: Yes, sir.

Mr. Carter: Do you know anything about trains 45 and 46?

Mr. Clewer: Yes, sir.

Mr. Carter: There are four trains, each way, each day?

Mr. Clewer: Yes, sir.

Mr. Carter: And these men are out there, in charge of this engine, with a guardian three miles distant in a telegraph office,

who has never been required to pass examinations like firemen do?

Mr. Clewer: I did not say that they had not been examined on transportation rules, and they are not three miles away from a telegraph office.

Mr. Carter: This telegraph office where the operator stays, the man that is watching them, to keep them out of trouble?

Mr. Clewer: The man that is located at Little Rock is responsible for their moving out of that terminal point. The man at the other end of the block is equally responsible with the Little Rock train despatcher. In other words, they are moving that power between Little Rock and Biddle in a positive block.

Mr. Carter: And where engine crews run in a positive block they are not required to have any knowledge of train rules, is that right?

Mr. Clewer: They are supposed to have knowledge of all transportation rules.

Mr. Carter: What do you pay these colored hostlers?

Mr. Clewer: Eighteen and one-half cents an hour for 12 hours.

Mr. Carter: In regard to these men not being able to get off at noon, on account of the rush, in your describing the work out here at 47th street, didn't you say the rush was in the morning?

Mr. Clewer: That is one rush, yes, sir.

Mr. Carter: And there is a rush at noon?

Mr. Clewer: Yes, sir.

Mr. Carter: And isn't there a rush in the evening?

Mr. Clewer: Not compared with morning, noon and midnight.

Mr. Carter: Well, when would you have a hostler eat?

Mr. Clewer: When do we?

Mr. Carter: When would he?

Mr. Clewer: Whenever it is convenient for him to arrange that meal hour for himself.

Mr. Carter: Well, do you think if he got something to eat, if he found it convenient to get something to eat within six hours after he started to work, he would be all right?

Mr. Clewer: I couldn't say how long he would be able to go without eating again, but I should say, that that would be a

matter that he would have to arrange according to the work that he had to perform.

Mr. Carter: Some of them go a long while, don't they?

Mr. Clewer: Not necessarily.

Mr. Carter: Did you ever work as a switch engineer or switch fireman?

Mr. Clewer: I have worked as a switch engineer, yes, sir.

Mr. Carter: Do you know anything about the rules in agreements between the engineers and the company?

Mr. Clewer: Yes, sir.

Mr. Carter: Giving them a right to eat at certain times?

Mr. Clewer: Yes, sir.

Mr. Carter: Do you know what brought about that rule?

Mr. Clewer: I do not.

Mr. Carter: You don't know?

Mr. Clewer: No, sir.

Mr. Carter: And you are a member of the Brotherhood of Locomotive Engineers?

Mr. Clewer: I am.

Mr. Carter: In regard to these oil burning men. I understood you to say they have to operate their firing valve?

Mr. Clewer: Yes, sir.

Mr. Carter: Do they have anything to do with the preparation of steam and oil, the mixture, I mean?

Mr. Clewer: They do.

Mr. Carter: They regulate that, do they?

Mr. Clewer: Yes, sir.

Mr. Carter: When do they change that? When do they regulate it? What is the cause of change in regulating that?

Mr. Clewer: You mean the atmosphere?

Mr. Carter: Yes, sir.

Mr. Clewer: They change that to meet with the conditions under which the locomotive is operated.

Mr. Carter: And if the conditions under which a locomotive is operated change constantly, he would also have to make the necesary changes, would he not?

Mr. Clewer: He certainly does.

Mr. Carter: What would be the effect if an engine was being worked very hard at a comparatively high speed and the

engineer shut off his throttle valve and the fireman did not shut off his firing valve?

Mr. Clewer: He would be liable to get her pretty hot.

Mr. Carter: Where would the fire go?

Mr. Clewer: The first thing the fireman would do would be to open his blower and put it out of the stack.

Mr. Carter: He would have to do something, wouldn't he?

Mr. Clewer: He would have to open the blower.

Mr. Carter: Doesn't he have to handle the valve as often and in a similar manner to the engineer handling the throttle?

Mr. Clewer: He does. He works with the engineer.

Mr. Carter: Is not he supposed while he is sitting there doing nothing but fire oil, to also look out for signals?

Mr. Clewer: He is looking ahead as well as tending to the firing of the locomotive.

Mr. Carter: He is watching for signals, isn't he?

Mr. Clewer: I presume he is, yes.

Mr. Carter: Is he held responsible for a great many things besides firing the locomotive, as much so as any other fireman?

Mr. Clewer: His duties in that respect are the same as a coal burning fireman.

Mr. Carter: Is it not a fact that with the introduction of larger oil burning locomotives, trains have become a great deal heavier?

Mr. Clewer: They have, yes, sir.

Mr. Carter: Is it not a fact that where the lighter engine formerly went over the road at a higher speed, that now these drags are very slow getting over the road?

Mr. Clewer: That is possible.

Mr. Carter: Is it not a fact that you load trains where you have oil as fuel heavier than when you have coal as fuel?

Mr. Clewer: Not to my knowledge.

Mr. Carter: You don't know, then, that it is a matter of common knowledge at Master Mechanics' Conventions and Traveling Engineers' Conventions that you can make an engine more efficient with oil than you can with coal, keep her hotter, I mean?

Mr. Clewer: I know, from practical experience, that you cannot pull any more cars with an oil burning locomotive than you can with a coal burning locomotive of the same type.

Mr. Carter: Is it not more practical to keep an engine at the maximum pressure with oil than it is with coal?

Mr. Clewer: You may keep a more uniform pressure.

Mr. Carter: Would not that increase the efficiency of the locomotive?

Mr. Clewer: Not if the coal burner was handled likewise.

Mr. Carter: Suppose in case a fire is dirty in a coal burner, and perhaps the coal is bad, and maybe the fireman is tired, is that locomotive as efficient as if you had a coal burning locomotive?

Mr. Clewer: The locomotive is all right, but the fireman is not efficient.

Mr. Carter: Then, can a locomotive be efficient and the fireman not be efficient, too?

Mr. Clewer: That is possible, yes, sir.

Mr. Carter: Then if a fireman does not fire, the engine will still continue to pump?

Mr. Clewer: I will ask you to repeat that.

Mr. Carter: I will put it a different way. If a fireman, through fatigue, and because of bad coal and a dirty fire, could not keep the steam up, would the efficiency of the engine still keep up?

Mr. Clewer: The engine is all right, but there are other conditions that are preventing it from putting up 100 per cent efficiency.

Mr. Carter: That is what I meant exactly. Well, you say it did not have 100 per cent efficiency, now, with oil is it not a fact that the efficiency of the locomotive is practically 100 per cent?

Mr. Clewer: Not always, no, sir.

Mr. Carter: Is it not much more so than the coal?

Mr. Clewer: My experience has been that we had about as good success with our coal burner as we did with our oil burner, regarding efficiency.

Mr. Carter: That is all.

Mr. Stone: What examinations are hostlers put through to demonstrate their fitness and ability for the position?

Mr. Clewer: There is not any examination that is laid down to govern that feature. They are passed upon by the hostler whom they have been working under, and the judgment of the

roundhouse foreman, as to whether they are qualified for handling the locomotives with safety.

Mr. Stone: Well, just in what manner do they judge, if they pass no examinations of any kind?

Mr. Clewer: I don't know of any examination from my practical experience that you could give a hostler, other than to watch his performance.

Mr. Stone: Are all the hostlers on the Rock Island able to speak English?

Mr. Clewer: I will ask you to repeat that, please?

Mr. Stone: Are all the hostlers employed by the Rock Island, at the present time, handling these locomotives, able to speak the English language?

Mr. Clewer: They are.

Mr. Stone: Is that true of all the roads in Western territory?

Mr. Clewer: I could not speak for them.

Mr. Stone: Do not you believe it is necessary, in order to get results, that the man handling the locomotive should be able to speak English?

Mr. Clewer: He should, yes, sir.

Mr. Carter: These two hostlers that you described out here at 47th street, Chicago, where one takes the engine from the herding track to the pit, and the other from the pit to the roundhouse?

Mr. Clewer: Yes.

Mr. Stone: Is their value just the same, and are they paid just the same?

Mr. Clewer: Yes, sir.

Mr. Stone: You make no distinction between the two?

Mr. Clewer: None whatever.

Mr. Stone: You speak of the hostler at the smaller terminals being required to wipe and do other work. Do you wipe your engines every trip now on the Rock Island?

Mr. Clewer: Not hardly.

Mr. Stone: When did you commence wiping them at all?

Mr. Clewer: We never have quit.

Mr. Stone: You quit before I left the Rock Island. I don't know what you have done since. How often do you wipe your freight engines?

Mr. Clewer: Just as often as we can get them to stand still long enough to perform the job.

Mr. Stone: Well, in the last year, with your lighter power, there has not been much trouble getting them wiped, because you have been running the Mikados?

Mr. Clewer: We have not experienced much trouble in getting our engines wiped at any of the terminal points, other than the fact that they are turning promptly, and they don't have time to always give them a wiping. We have now changed, however, from the wiping to another system of cleaning since you left the Rock Island.

Mr. Stone: Put the seam hose on them now?

Mr. Clewer: No, sir.

Mr. Stone: Hot water?

Mr. Clewer: No, we have a very up to date machine for the cleaning of our power.

Mr. Stone: It might be a good idea for you to describe that for the benefit of the Board?

Mr. Clewer: I can only say to you that it is a machine carrying with it oil and water containing a pressure, and by the force of this pressure of the oil and water on the parts of the locomotive it washes it perfectly clean.

Mr. Stone: And puts most of the dirt down in the bearings and in the boxes?

Mr. Clewer: Well, we don't experience that.

Mr. Stone: That has been the result on some of the other roads that have tried the same plan, however. Do you do that every trip?

Mr. Clewer: We do if we can get to all the locomotives. We have one at 47th street roundhouse that is in operation daily.

Mr. Stone: And do you claim from that you get as good results as you did from the old system of wiping with waste?

Mr. Clewer: I think better.

Mr. Stone: Speaking of these men at these terminals; the fireman who comes in off the road would have to perhaps spend a long time in learning his way about the roundhouse and yard and terminal, is it a fact that most of those firemen would be in touch with that from running in and out of that same terminal?

Mr. Clewer: I would say no.

Mr. Stone: Well, now, take for example, those small places you described, like Bureau and Peru, Illinois; about how long would it take a man to learn that three or four hundred feet of track where you move your engines?

Mr. Clewer: It would not take him long to become familiar with that point, but what you would get up against under a condition of that kind would be this, that you probably would want a hostler for some particular point on that division where this fireman may never have been about that terminal.

Mr. Stone: Then you do recognize the fact that there is such a thing as efficiency among hostlers?

Mr. Clewer: There certainly is.

Mr. Stone: You spoke of Brooklyn, Iowa. Are we to understand that those engines have stood out there all this winter through the fact that the power has outgrown the roundhouse, and you cannot get them in?

Mr. Clewer: Yes, sir, that is true of a number, in fact all of our terminals on the Rock Island Railroad, that they are not adequate for the business that we are getting, and we have not house room to house our power, so that where a terminal has about a seventeen or eighteen stall roundhouse, and you are turning fifty or sixty or eighty locomotives a day, it is necessary that a majority of that power stand on the herding tracks under steam, while it is looked after by these hostlers and their helpers.

Mr. Stone: Well, we were talking about Brooklyn, Iowa, where you only handle fifteen engines a day. Is it not a fact that your roundhouse there is so small that it will not take care of this heavy power?

Mr. Clewer: That is true.

Mr. Stone: So you simply turn them and stand them out on the track, in zero weather?

Mr. Clewer: Yes, sir.

Mr. Stone: Or any weather that comes through the winter?

Mr. Clewer: Yes.

Mr. Stone: When the men come around, after they have stood there several hours, the engine, while she is still alive, she is practically as near frozen up as she can be on grease cellars and everything else, is she not?

Mr. Clewer: Not necessarily so.

Mr. Stone: Of course, we understand she is still alive, because her injectors are open, and they have kept the heaters on all night.

Mr. Clewer: She is just as good as an engine that might come out of the roundhouse.

Mr. Stone: You think she would start right off and pull a tonnage train, just the same?

Mr. Clewer: No question about that. They do it every day.

Mr. Stone: You do not recognize the fact that with the present grease cellars, you have to get your engine warmed up before she is 100 per cent efficient?

Mr. Clewer: I never found that so.

Mr. Stone: You never were in the northwest and found the grease frozen up?

Mr. Clewer: I have known the trains to freeze up, that would interfere with their operating or handling.

Mr. Stone: But you do not recognize that in a locomotive?

Mr. Clewer: There is nothing about a locomotive, other than the driving boxes, and they are grease, that would interfere under a condition of that kind, unless it was the motion, and if it came in, frozen up, with the oil holes covered, they would be thawed out before the engineer started out on the engine again.

Mr. Stone: Who would thaw them out?

Mr. Clewer: The hostler and his helper, or the foreman, or whoever happened to be about that terminal would do the job.

Mr. Stone: Just how would he go to work to thaw them out, standing on the herding track?

Mr. Clewer: He would first take a hammer and he would tap the ice loose about the bearing. He would put a piece of waste saturated with a little steam on the end of a packing hook, or anything that might be handy, and hold it about that bearing until it is again free.

Mr. Stone: You spoke of these hostlers at these different points, and show that they are getting $52 a month, being brought up through the ranks. Where did you bring them from that they are still down to that low rate?

Mr. Clewer: We hire those fellows about those small places, at the small terminals.

Mr. Stone: What do you pay them, to start with?

Mr. Clewer: Why, we will pay them 15 cents an hour—whatever rate governs at that point.

Mr. Stone: Well, you would be paying him more than that, if you paid him 18 cents an hour for twelve hours a day, would you not?

Mr. Clewer: How is that?

Mr. Stone: You would be paying more than that?

Mr. Clewer: I said we would pay him 15 cents an hour, at his starting point, before he was advanced to hostler.

Mr. Stone: Well, if you paid him 15 cents an hour for a thirty day month, you would pay him $54, and yet, after he is advanced to hostler, he is only getting $52?

Mr. Clewer: That hostler that is at that small point is possibly made from a helper at another and heavier terminal.

Mr. Stone: Well, what did the helper get at the heavier terminal?

Mr. Clewer: Their rates vary.

Mr. Stone: Have you got any common laborer, less than 15 cents an hour?

Mr. Clewer: I am sure we have some at 47th Street, I wouldn't be positive.

Mr. Stone: Less than 15 cents an hour?

Mr. Clewer: Yes, sir.

Mr. Stone: I did not think it was possible to get day labor anywhere, at a lower rate than that. I think you stated that all roundhouse foremen were competent and able to handle engines. Is that correct?

Mr. Clewer: I do not know of any of them that is not competent to merely move the engine, but as to handling a locomotive generally, I am not prepared to say that they are.

Mr. Stone: You make a distinction, then, between moving a locomotive and being able to handle one?

Mr. Clewer: I do.

Mr. Stone: You evidently did not hear your mechanical superintendent testify the other day, when he said the engineer had been released of everything but opening and closing the throttle.

Mr. Clewer: I heard what he said.

Mr. Stone: I believe I am quoting verbatim, as he said it.

Then you do recognize there is something else for a man to operate a locomotive, besides opening and closing the throttle, do you?

Mr. Clewer: Yes, sir.

Mr. Stone: I think you stated that they shoveled down coal at these different places, besides their other duties at these small terminals?

Mr. Clewer: Yes, sir.

Mr. Stone: Mr. Tollerton testified here the other day that a fireman in going over the road, on a ten hour drag, was actually engaged in shoveling down coal, six minutes, so it would not take very long to perform the duty of shoveling down coal, would it, under those conditions, at a terminal?

Mr. Clewer: What I had reference to in shoveling down the coal was, that those passenger engines that run between Little Rock and Memphis, make that round trip by taking two tons of coal at Brinkley. Now, when they arrive at Little Rock, these hostlers will shovel forward off the back of the tank, back of the coal board, any coal that has gotten over on that portion of the tank. They will also shovel forward all the coal that is on the flat portion of the tank, so as to get that coal in the pit, and its place filled up with fresh coal.

Mr. Stone: You are speaking now of the old style flat tank, not the hopper tank?

Mr. Clewer: That is what I am speaking of, yes, sir.

Mr. Stone: On a hopper tank, that would not be necessary?

Mr. Clewer: No, sir.

Mr. Stone: Seventy per cent of that comes against the coal gate, if the track is rough enough. I think you stated to Mr. Carter that these negro hostlers at Little Rock, were examined on transportation rules. They are not examined on any mechanical rules, are they, in regard to the different parts of the locomotive, or anything of that kind?

Mr. Clewer: No, sir; they are supposed to be examined on transportation rules, but they are given no mechanical examination as to other than the proper care of a locomotive, while in their charge.

Mr. Stone: They are examined on that?

Mr. Clewer: That is a verbal examination, and they are

constantly instructed by the road foremen of engines and the supervisor of locomotive operation, at the various terminals.

Mr. Stone: I think the Rock Island inherited those negro hostlers from the Choctaw, when they took the road over, did they not?

Mr. Clewer: I couldn't say.

Mr. Stone: That is my recollection.

The Chairman: Will you suspend?

Mr. Stone: I am just practically through, your Honor. I will be in just a second.

Mr. Sheean: There are a few questions I want to ask, in the morning. Let him come back in the morning.

The Chairman: All right. We will suspend then.

(Whereupon, at 5 o'clock P. M., February 8, 1915, an adjournment was taken to February 9, 1915, at 10 o'clock A. M.)

IN THE MATTER OF THE
ARBITRATION
between the
WESTERN RAILWAYS
and
BROTHERHOOD OF LOCOMOTIVE ENGINEERS
and
BROTHERHOOD OF LOCOMOTIVE FIREMEN AND ENGINEMEN
under the Act approved July 15, 1913, *by agreement dated August* 3, 1914.

Chicago, Illinois, February 9, 1915.

Met, pursuant to adjournment, at 10:00 A. M.
Present: Arbitrators and parties as before.

Mr. Carter: Mr. Chairman and gentlemen: I have a few corrections I would like to make, cross examination of Mr. Clewer last evening, and before I make these corrections I would like to explain that it is not my purpose to criticise the stenographers. I am frank enough to say that I do not know how they get it, under the conditions of rapid cross fire. On page 4530, Mr. Clewer is quoted as saying, "You mean the atmosphere?" It should be, "You mean the 'atomizer'?" The word "atomizer" should be substituted for "atmosphere."

On page 4532: "Mr. Carter: Suppose in case a fire is dirty in a coal burner, and perhaps the coal is bad, and maybe the fireman is tired, is that locomotive as efficient as if you had a coal burning locomotive?" It should be changed to "an oil burning locomotive."

Fourth paragraph below: "Mr. Carter: Then if a fireman does not fire, the engine will still continue to pump." It should be, "The engine will still continue to pop."

On page 4536: "Mr. Clewer: He would first take a hammer and he would tap the ice loose about the bearing. He would put a piece of waste saturated with a little steam on the end of a packing hook, or something that might be handy, and hold it

about that bearing until it is again free." The word "steam" should be "kerosene," I think.

Mr. Stone: I have one correction, Mr. Chairman, on page 4534, when I asked Mr. Clewer the following question— We were discussing the cleaning of locomotives, and I said, "Put the steam hose on them now?" They have it "seam hose." It should be "steam hose."

The Chairman: Are there any further corrections?

Mr. Sheean: I have none.

The Chairman: You may proceed.

HARRY CLEWER was recalled for further examination and, having been previously sworn, testified as follows:

Mr. Stone: Mr. Clewer, in your direct evidence, yesterday, I believe you stated that the hostler took charge of the engine, and had the fires and ash pan cleaned, and ran the engine on the table and put it in the house, and then the boiler was washed out and the work that was reported by the engineer was finished?

Mr. Clewer: Yes, sir.

Mr. Stone: The engine was fired up and taken out of the house and was ready for the road. That was, in a general way, your testimony, was it not?

Mr. Clewer: Yes.

Mr. Stone: As a general rule, do you try to do all the work reported by the engineers, before the engine is sent out on the next trip?

Mr. Clewer: Make every effort possible to do it.

Mr. Stone: As a general rule, do you find the work reported on an engine, by the engineer, to be accurate?

Mr. Clewer: Not always.

Mr. Stone: But as a general rule, do you find the large majority of it accurate?

Mr. Clewer: Well, I couldn't say that they ever get a good report, leading right up to the necessary work, especially pertaining to the condition of valve and cylinder packing. That isn't because they probably don't know how to report that work, but it is the manner in which they have been led into making out their work report.

Mr. Stone: With your piston valve engines, is it always possible to tell just where the blow is?

Mr. Clewer: Yes, sir.

Mr. Stone: And the difference between valve blowing and cylinder blowing?

Mr. Clewer: Yes, sir.

Mr. Stone: No trouble at all?

Mr. Clewer: None whatever.

Mr. Stone: You have never had any leak through under the bushing in the valve chamber?

Mr. Clewer: That would be a valve blow.

Mr. Stone: Entirely?

Mr. Clewer: Yes, sir.

Mr. Stone: It could not be anything else?

You have had quite a good deal of experience as a locomotive engineer, have you not?

Mr. Nagel: Did you want to answer that preceding question, Mr. Clewer?

Mr. Clewer: Yes, sir; I did.

Mr. Nagel: Just answer it, then.

Mr. Clewer: I wanted to qualify by saying that while the engineer could not probably intelligently say just what that blow was, he would know that it was a blow in the right or left valve that he had tested for that blow. It might not always be that it was due to worn valve rings, but a blow from a loose bushing, or a condition of that kind, would be the same kind of a blow as would come from a worn packing ring or a hollowed or worn bushing.

Mr. Stone: You have had considerable experience as a locomotive engineer, have you not?

Mr. Clewer: Yes.

Mr. Stone: About how many years?

Mr. Clewer: I think, stretched over the period of my entire experience, it would be eight or nine years.

Mr. Stone: Most of that time on the Rock Island and Peoria?

Mr. Clewer: No, sir.

Mr. Stone: On what road?

Mr. Clewer: The Chicago & Alton.

Mr. Stone: What division of the Chicago & Alton?

Mr. Clewer: I ran between the road house in St. Louis, St.

Louis and Bloomington, and on the division between the road house and Slater, Slater to Kansas City.

Mr. Stone: How long were you with the Alton?

Mr. Clewer: All told, I was with the Alton from August, 1894, to 1900.

Mr. Stone: What was the heaviest type of engine that the Alton had at that time?

Mr. Clewer: They had ten-wheel Moguls—or rather a mogul type of an engine.

Mr. Stone: What size?

Mr. Clewer: They were 22 inch cylinder by 30, if I remember correctly.

Mr. Stone: In your judgment, did the pooling of locomotives by the railroad companies have anything to do with relieving the engineers of packing cocks inside the cab, adjusting wedges and cleaning headlights?

Mr. Clewer: The pooling of locomotives?

Mr. Stone: Yes.

Mr. Clewer: It may have had some bearing on it.

Mr. Stone: Is it not a fact that oftentimes, after an engineer would take his needed rest, upon arrival after making a trip, then he would go to the roundhouse to make these repairs and the engine had gone out on another run with another engineer assigned?

Mr. Clewer: That has occurred, yes, sir.

Mr. Stone: It was the company that caused the engines to run in a pool, was it not, and not the engineers?

Mr. Clewer: Not the company altogether, no, sir.

Mr. Stone: It was wanting to get more service out of the engine, and due to the fact that they claimed that the engine did not need a rest like the man, that led to the pooling, to get more engine miles?

Mr. Clewer: No, sir.

Mr. Stone: Just what did bring it then?

Mr. Clewer: We have had the engines regularly assigned on a good many divisions, and according to our agreement with the enginemen we have to either furnish them an engine or expect that they will wait if the engine should be used in emergency service; and that is greatly responsible for the engines going into the pool.

Mr. Stone: That was brought about by the fact, was it not —that particular rule—because they used to require a man to wait while his engine went to the shop?

Mr. Clewer: Yes, sir.

Mr. Stone: And he lost a lot of time?

Mr. Clewer: We would put him on the extra board if his engine went into the shop, when they were regularly assigned, and give him a chance to earn some time while the engine was going through the shop.

Mr. Stone: But now he holds the job, and he goes with whatever engine happens to be assigned to the run?

Mr. Clewer: Yes; he goes on the run in his turn, regardless of the engine furnished.

Mr. Park: Well, that applied only to roads that do pool their engines; a great many roads have assigned engines, have they not?

Mr. Clewer: Yes, sir.

Mr. Park: It is not the general practice?

Mr. Clewer: No, sir, it is not the general practice.

Mr. Stone: But if, from any cause, when a man is on an assigned engine, if that engine should go in the shop for repairs or anything else, he would be given another one, would he not?

Mr. Clewer: Yes, sir, he would. That would apply in the case of one held in for a period of 24 to 48 hours; if his turn to come out was due, he would be supplied with another engine to take the place of it.

Mr. Stone: And if he did not have a regular engine, you would take one of the other assigned engines and give him that?

Mr. Clewer: Yes, we would have to do that, or pay him the penalty time he laid there.

Mr. Stone: I understood you to say yesterday that engines were not held long enough to wipe them, when business was good, and you had adopted this modern method of cleaning them, did you not?

Mr. Clewer: I said when they were handling a heavy volume of business they did not get an opportunity to wipe all their engines; that at times they were not held long enough. That is what I aimed to qualify on.

Mr. Stone: It is a fact, in times of heavy business, that you do get more mileage out of the engine than the man himself

can follow, because he has to take a certain rest required by law, does he not?

Mr. Clewer: Yes, sir.

Mr. Stone: You spoke yesterday of this highly specialized place out here at 47th street. What rate do you pay hostlers at 47th street?

Mr. Clewer: 19½ cents per hour.

Mr. Stone: And you pay the negro at Little Rock 18½ cents?

Mr. Clewer: Yes, sir.

Mr. Stone: So there is not much difference in the specializing, is there?

Mr. Clewer: Well, the rates of pay, of course, vary at those two different points.

Mr. Stone: They do not vary very much, do they, between a highly specialized point like Chicago and a place like Little Rock?

Mr. Clewer: Well, I do not know that there is such a vast difference in the places, between 47th street and Little Rock, in the number of engines handled.

Mr. Stone: I thought you testified yesterday that these negro hostlers only handled eight engines over the main line between Little Rock and—

Mr. Clewer: I did not testify as to the number. I gave that as my judgment of about the number that they handled.

Mr. Stone: About eight engines. How many do these two specialized men, day and night, out at 47th street, handle?

Mr. Clewer: Oh, those men will handle, for a period of 30 days, between 2,100 and 2,300 engines a month. That is, for a period of 30 days they will handle 2,100 to 2,200 engines.

Mr. Stone: Then it is safe to say they handle 80 to 90 engines every 24 hours?

Mr. Clewer: It is safe to say around 55 to 60, I should judge.

Mr. Stone: What do you pay your hostler at Bureau?

Mr. Clewer: I would have to look at Form 42 to answer that question.

Mr. Stone: It is all shown there on the form which is submitted?

Mr. Clewer: Yes.

Mr. Stone: What do you pay for hostlers' helpers out at 47th street, do you recall?

Mr. Clewer: No, I do not know.

Mr. Stone: About how many of these hostlers make main line movements, do you know what percentage?

Mr. Clewer: I do not. I know points where they make main line movements.

Mr. Stone: I wish you would state a few, if you will.

Mr. Clewer: Well, for example, at Eldon, Iowa, and at Little Rock, and at Forth Worth; and there may be a number of other points that I cannot recall just now.

Mr. Stone: At these points the hostler has to cross the main track, or go on the main track, at least?

Mr. Clewer: Yes, sir.

Mr. Stone: I know particularly at Eldon, Iowa, the coal chute is on one side of the main line and the roundhouse and turntable on the other.

Mr. Clewer: Yes, sir.

Mr. Stone: So every engine he handles, he has to make a main line movement?

Mr. Clewer: Yes, sir.

Mr. Stone: And the most of it is on the end of the river bridge, at that, on single track, is it not?

Mr. Clewer: It is.

Mr. Stone: Do you think that is in accord with the well defined policy of "Safety First," to have these low priced, inexperienced men handling engines on the main line?

Mr. Clewer: I can see no reasons why it is not safe.

Mr. Stone: Do you think that would meet with the approval of the Interstate Commerce Commission, if they knew of it, and the traveling public, also?

Mr. Clewer: It is entirely satisfactory and seems to meet with the approval of all concerned up to date, and I have not any reasons to believe but what it should continue so.

Mr. Park: Do you understand that the Interstate Commerce Commission take cognizance of operating methods and dictate to the management how they shall apply the rules?

Mr. Clewer: Well, I could not say that I do, Mr. Park.

Mr. Stone: Were you here, Mr. Clewer, when we had the question up in regard to surprise tests and heard the claims

made by certain members of the Board that the Interstate Commerce Commission compelled them to make these tests?

Mr. Clewer: No, sir, I was not present.

Mr. Stone: Then, I would understand from your testimony that the wages are about the same, regardless of the importance of the terminal or the work?

Mr. Clewer: No.

Mr. Stone: It varies from 18½ cents to 19½ cents?

Mr. Clewer: No. The wages vary.

Mr. Stone: Any less than 18½ cents?

Mr. Clewer: I would not be sure about that.

Mr. Stone: You were road foreman of engines for a number of years on the Missouri Division, were you not?

Mr. Clewer: Yes, sir.

Mr. Stone: And thoroughly familiar with that type of engine they used there?

Mr. Clewer: Yes, sir.

Mr. Stone: You think, when you were there, they had a 1400 and a 1600 class?

Mr. Clewer: Yes.

Mr. Stone: Now, they have the 5700 class, quite a number of them, have they not?

Mr. Clewer: The 2500 class?

Mr. Stone: The Mikado type.

Mr. Clewer: Yes, sir.

Mr. Stone: They have a number of the Mikado type there, have they not?

Mr. Clewer: Yes, sir; 2500 class.

Mr. Stone: About what has been the increase in tonnage of the Mikado type over the Consol. which was there before?

Mr. Clewer: They have not pulled as much.

Mr. Stone: They have not pulled as much?

Mr. Clewer: No, sir.

Mr. Stone: What is the trouble with your rating sheet, then?

Mr. Clewer: I could not answer that, but their tonnage per train—

Mr. Stone: I am not talking per train, but about the 100 per cent efficiency of the engine.

Mr. Clewer: They are capable of pulling more than a Consol., but they are not pulling it.

Mr. Stone: Take between Eldon and Centerville, westbound; that is the ruling grade, is it not?

Mr. Clewer: Yes, sir.

Mr. Stone: For the middle district. What was the rating for your 1600 class, do you recall?

Mr. Clewer: 1,335 tons, if I remember correctly.

Mr. Stone: Your time card shows your A rating to be 1,550 tons, and your D rating, which I understand is the bad weather rating, 1,370 tons.

Mr. Clewer: Yes.

Mr. Stone: What is your rating for your Mikado type?

Mr. Clewer: I could not tell you.

Mr. Stone: The 1914 time card shows the first rating to be 2,200 tons and your D rating 1,930 tons, an increase of over 40 per cent in the case of the former; is that about correct?

Mr. Clewer: I could not say because I do not know what the rating of the 2,500 is on that division.

Mr. Stone: Well, take your rating east, between Trenton and Eldon, eastbound. Do you recall what your rating was in 1909 and 1910 for the Consol.?

Mr. Clewer: 1,335 for the slow freight rating, and 80 per cent of that tonnage for the time freights.

Mr. Stone: And what was your rating for the Mikado?

Mr. Clewer: I could not say.

Mr. Stone: The time card shows the rating in 1909 to be 1,200 tons for the Consol. and 1,750 tons for the Mikado, an increase of 45 per cent. Are you familiar with the rating on the Illinois division?

Mr. Clewer: No, sir.

Mr. Stone: As superintendent of locomotive operation, just what are your duties, Mr. Clewer?

Mr. Clewer: My duties are to effect economies in the operation of the locomotive and improve its efficiency.

Mr. Stone: Speaking now, in a general way, looking after fuel economy and such things as that?

Mr. Clewer: Yes, sir.

Mr. Stone: That is the principal part of your work?

Mr. Clewer: Practically; and general road foreman of engines.

Mr. Stone: Do you have anything to do with the handling of the men, or seeing that they are getting the efficiency out of the engines on the road, or do your road foremen of engines under you handle that?

Mr. Clewer: The road foremen of engines and supervisors of locomotive operation handle that feature.

Mr. Stone: And you have general jurisdiction over all?

Mr. Clewer: Yes, sir.

Mr. Stone: I think you stated yesterday, in reply to a question by the counsel for the railroads, that you had learned that feature of firing oil on one of our oil burning motor cars. Which type of car was that?

Mr. Clewer: To explain it to you, merely a steam propelled motor car, that was. The steam was generated by the use of fuel oil.

Mr. Stone: What sized boiler?

Mr. Clewer: Oh, I could not give you the dimensions of the boiler.

Mr. Stone: Just a flash boiler, was it not?

Mr. Clewer: Sir?

Mr. Stone: A flash boiler?

Mr. Clewer: It was a small locomotive type of a boiler.

Mr. Stone: What was the tractive effort of this motor car?

Mr. Clewer: I would have to consult the record, to give you that.

Mr. Stone: Well, are we to understand from your testimony, that firing this motor car and firing one of these Mikado engines, with oil, is practically the same?

Mr. Clewer: No difference in the world.

Mr. Stone: Just the same?

Mr. Clewer: Yes, sir.

Mr. Stone: The duties of the fireman would be just the same, or did you fire and run the motor car, both?

Mr. Clewer: I fired and ran it both. I want to qualify, in saying that the same principle of operation of the oil firing device of that motor car would apply to any oil burning locomotive.

Mr. Burgess: Pardon me, Mr. Stone; does the motor car handle freight cars?

Mr. Clewer: This one did not, no, sir.

Mr. Burgess: How many passenger cars did it handle?

Mr. Clewer: Beg your pardon.

Mr. Burgess: How many passenger cars did it handle?

Mr. Clewer: It was a passenger car, all in one; had no trailer—carried no trailer.

Mr. Burgess: The engine just operated one car?

Mr. Clewer: Yes, sir; you could, however, attach a trailer if you so desired. Business in that territory did not warrant the handling of a trailer. It had a capacity of forty people.

Mr. Burgess: Was the engine for that car designed just to operate the one car?

Mr. Clewer: Well, it was designed to handle a trailer, if you so desired.

Mr. Burgess: More than one trailer?

Mr. Clewer: I would not say that it would handle more than one trailer, no, sir.

Mr. Burgess: Thank you.

Mr. Stone: Is it not a fact that as a motor car it finally proved a failure and would not handle itself?

Mr. Clewer: Well, it was a success when I handled it on the Missouri Division.

Mr. Stone: How many trips did you have it on the Missouri Division?

Mr. Clewer: I ran it for about three weeks, at one time.

Mr. Stone: Is it still in operation on the Rock Island?

Mr. Clewer: I could not say.

Mr. Stone: I thought you said you were in charge of locomotive operation?

Mr. Clewer: I am.

Mr. Stone: And don't know whether a motor car is in service on your lines, or not?

Mr. Clewer: There might be several of the locomotives out of commission, that I don't know anything about. The same would apply to that motor car. We have motor cars operating on different points on the line, and I often get into that territory and find that that motor car is out of commission; so that there are no reports to me at the time they are taken out of service;

therefore, I am not always in a position to say positively whether or not all of these engines and all of these motor cars are performing their assigned duties, daily.

Mr. Stone: Do you know whether the Rock Island owns a steam motor car at the present time or not?

Mr. Clewer: No, sir, I do not.

Mr. Stone: About how much were they burning on the Consol. engine between Eldon and Trenton, when you were foreman of engines?

Mr. Clewer: That would depend altogether upon the conditions.

Mr. Stone: A tonnage train, I mean?

Mr. Clewer: We would go from Trenton to Eldon on about eleven to twelve tons of coal.

Mr. Stone: How much coal is the Mikado burning on that division at the present time?

Mr. Clewer: I could not say positively, because I have not ridden a Mikado engine pulling a tonnage freight train over the entire division.

Mr. Stone: Had they come to this division before you left there as road foreman—the Mikados?

Mr. Clewer: No, sir.

Mr. Stone: At what time did the Mikado engines go into service on the Rock Island Road?

Mr. Clewer: I should say about three years ago.

Mr. Stone: Some time in 1912, was it not?

Mr. Clewer: I think so.

Mr. Stone: When you were an engineer and also a road foreman of engines, did you have any experience with engines out on the road having their flues start to leak?

Mr. Clewer: Yes, I have.

Mr. Stone: What would you do in a case like that; give up your train?

Mr. Clewer: If I couldn't get sufficient steam to handle it, I naturally would; but I never had a failure of that kind.

Mr. Stone: You never had to give up a train?

Mr. Clewer: No, sir.

Mr. Stone: You managed to get in some way, did you not?

Mr. Clewer: I was fortunate, I guess, that the trouble never overtook me.

Mr. Stone: Didn't you ever have any leaky flues while you were an engineer?

Mr. Clewer: I have, yes, sir.

Mr. Stone: But you got in?

Mr. Clewer: Yes, sir.

Mr. Stone: And handled your train?

Mr. Clewer: Yes, sir.

Mr. Stone: Did you ever have any of these arch flues or arch tubes leak?

Mr. Clewer: No, sir.

Mr. Stone: You have known of them leaking, have you not, as road foreman of engines; you have known of them splitting in the bend, or leaking in—

Mr. Clewer: I have heard of failures of that nature.

Mr. Stone: Have you ever known of them to get to leaking bad enough to give up the train?

Mr. Clewer: I have known them to kill the engine on the main line.

Mr. Stone: That is, when the tubes split wide open?

Mr. Clewer: Yes.

Mr. Stone: But isn't it quite common for them to give out in the lower bend and start to leaking?

Mr. Clewer: It is not, in our experience.

Mr. Stone: You never have known any of them to leak there, or split there?

Mr. Clewer: I said that I had known of failures of that kind to occur, but that has been some time ago. Our late experience with that type of an arch support is entirely satisfactory, and I do not know of any failures from the arch flues.

Mr. Stone: In other words, they never give out?

Mr. Clewer: No, sir; we do not permit them to run until they will fail on the road, if we can prevent it.

Mr. Stone: Just how do you go to work to find out whether they are getting down to a dangerous thinness?

Mr. Clewer: Just the moment that they show any indication of a blister at the bend, it indicates that it is time for removal.

Mr. Stone: And that is inspected every trip, to see whether they are blistered or not?

Mr. Clewer: They are washed out and rattled every time

that the boiler is washed out, and an examination is made of those circulating tubes, the same as any other part of the boiler.

Mr. Stone: Just how often is the boiler washed out, under normal conditions?

Mr. Clewer: That depends on the territory in which the locomotive is operating.

Mr. Stone: But they do occasionally blister, and occasionally the blister opens and you have a leak, do you not?

Mr. Clewer: We do not experience that trouble, no, sir.

Mr. Stone: You are still using the circulating flues, or what is commonly called arch tubes, to hold up your brick arches?

Mr. Clewer: Yes.

Mr. Stone: In your latest type of locomotives?

Mr. Clewer: Yes.

Mr. Stone: Did you ever know of a brick arch falling down on the fire?

Mr. Clewer: No, sir.

Mr. Stone: You have never heard of one doing that?

Mr. Clewer: No, sir; I have heard of a brick falling down occasionally, but not an entire arch.

Mr. Stone: How many brick are there in the arch?

Mr. Clewer: Twenty-four.

Mr. Stone: On all types of engines?

Mr. Clewer: No, sir; that varies according to the size of the fire box.

Mr. Stone: What do they do when a brick falls down?

Mr. Clewer: Leave it alone.

Mr. Stone: You have never seen one lying outside along the right of way anywhere?

Mr. Clewer: I have. It is natural that if the brick fell down in the fire box and the fireman had something to do it with, he would pull the brick out and throw it out of the gangway. If he has not the tools to do that with, he will leave the brick as it is.

Mr. Stone: But it is possible, with a clinker hook, to hook them out of the door and throw them out the gangway, is it not?

Mr. Clewer: Oh, if you have the tools to do the work with, it is possible to do it, yes.

Mr. Stone: Did you hear Mr. Tollerton, mechanical super-

intendent, say the other day that they abandoned a train when an arch fell down?

Mr. Clewer: Yes, sir.

Mr. Stone: Do you believe it to be possible, if you could hook out one brick, that you could not hook out six or eight bricks?

Mr. Clewer: I am satisfied that if that arch fell down as Mr. Tollerton said, he would cut the engine off, and the train would go on to the side track.

Mr. Stone: And then hook them out and couple on again and go on?

Mr. Clewer: No; he would not hook them out. He would leave them right there.

Mr. Stone: If a man can hook one brick out, why can he not hook out eight bricks?

Mr. Clewer: He could. He could hook out ten, if he had the tools with which to do it, but we do not carry tools on the locomotive for that purpose.

Mr. Stone: You have a clinker hook, do you not?

Mr. Clewer: No, sir.

Mr. Stone: Isn't it a part of your equipment?

Mr. Clewer: Not on our passenger locomotives, no, sir.

Mr. Stone: Passenger locomotives do not need it. It is the freight man, with the long hours, that needs the clinker hook, is it not?

Mr. Clewer: It is possible that he would have more use for it than the man on the passenger locomotive; but we don't carry those cleaning tools on the locomotive.

Mr. Stone: You have brick arches in your freight engines, do you not?

Mr. Clewer: Yes, sir.

Mr. Stone: It would be possible, if you could hook your brick out, to come in without an arch in your engine, would it not?

Mr. Clewer: Oh, yes.

Mr. Stone: You would burn a little more coal, perhaps, the way the engine was drafted.

Mr. Clewer: Yes.

Mr. Stone: Just how do the firemen clean the fires out on the road without tools?

Mr. Clewer: They don't clean the fires out on the road.

Mr. Stone: They do not clean the fires out on the road?

Mr. Clewer: No, sir.

Mr. Stone: Do you mean to say that your men on these long freight trains never clean their fires when they get dirty and get to steaming bad?

Mr. Clewer: No, sir.

Mr. Stone: They never hook the clinkers out of the bottom of the fire?

Mr. Clewer: No, sir, they do not.

Mr. Stone: I see very plainly, Mr. Chairman, that we will have to bring in a few more witnesses in rebuttal, from the testimony of this witness.

The Chairman: I did not understand that.

Mr. Stone: This witness has just made the statement that the firemen never clean the fires on the road, or hook the clinkers out.

Mr. Park: That is, as far as the Rock Island is concerned?

Mr. Stone: Yes. The right of way of the Rock Island is paved from one end to the other half the way with clinkers hooked out of the fire box, or else I don't know what I am talking about. I have hooked out enough myself to ballast at least ten miles of the track.

I think that is all.

Mr. Clewer: I would like to say, in answer to that question, that we do not supply our locomotives with fire cleaning tools, and it is not the general practice for a fireman to clean fires en route. Our fires are taken care of at the terminal points, and if a fire got into such a condition that he could not do the business, he would reduce the train and come in and put a failure on the engine account of no steam.

Mr. Park: Isn't it a question of expediency in engine failures, mechanical failures, or boiler failures, or failures caused by the poor coal; those are out of the general line of operation, and when they do occur, the engineer is governed by the circumstances and conditions?

Mr. Clewer: Yes.

Mr. Park: He may leave the train, he may take part of it, or he may try to take it all in.

Mr. Clewer: Yes.

Mr. Park: Or, if the failure is of such a character as to necessitate, in his judgment, the setting out of the train, he does that?

Mr. Clewer: He does.

Mr. Park: There is one question that I wanted to ask you on the assignment and pooling of engines. What are the advantages of an assigned engine; that is, an engine run by one individual enginer?

Mr. Clewer: I think there is no comparison as to the results obtained with a regularly assigned engine as against a pooled engine.

Mr. Park: That is, from a mechanical and operating point of view?

Mr. Clewer: From an operating point of view, yes.

Mr. Stone: What are those advantages?

Mr. Clewer: When a man has a regular engine, he becomes perfectly familiar with the condition of that engine and its performance. He knows just what he can depend upon that it is going to do, and he has everything in place; and, in fact, there is really no comparison between a pooled and a regularly assigned engine.

Mr. Park: Does he do work on the engine of his own volition that otherwise would not be done?

Mr. Clewer: Yes, sir; our enginemen who have regularly assigned engines, take care of their own wedges, and they do about all the work that is now done on the pooled engines; and they take a great deal of pride in the care of the locomotive, and in getting the highest possible efficiency from it.

Mr. Park: And the contrary seems to obtain as to pooling engines; that is, that they are more or less neglected and the work is not reported, and so on?

Mr. Clewer: Yes, sir.

Mr. Stone: Just one more question. In assigned engines it is necessary for the engineer and fireman to occasionally lay off, is it not?

Mr. Clewer: Yes.

Mr. Stone: And then you have to put an extra man on?

Mr. Clewer: They will lay off; yes, sir.

Mr. Stone: Then, if they laid off one trip during the month,

they would not be included in that chosen few that Mr. Keefe shows here on his high general average, would they?

Mr. Clewer: I don't know about that.

Mr. Stone: A man that laid off one trip was not in the table, I understand.

Mr. Sheean: Not if that put him below $100.

Mr. Stone: No.

Mr. Sheean: Oh, yes. Those that are not included are only those who, by laying off, dropped below $100.

Mr. Stone: I do not so understand this table on that high average earnings. I understand that it showed the men that worked the calendar month.

Mr. Sheean: It showed the men, Mr. Stone, who, by reason of laying off, fell below $100; and anybody earning $100 or more was treated as being on duty the entire month.

Mr. Park: What was your $162 average made up from, Mr. Keefe?

Mr. Stone: We will come back to that a little later on, and read Mr. Keefe's testimony. I do not care to discuss it now, but I am satisfied that Mr. Sheean is mistaken.

Mr. Keefe: You gentlemen are talking about two different exhibits. One of you is talking about one exhibit and one of you is talking about the other exhibit.

Mr. Stone: Well, you did have an exhibit where, if a man laid off any time during the calendar month, he was not shown, did you not?

Mr. Keefe: He was not shown as having worked a full month. He was shown in the exhibit. There is no elimination at all as to taking a man out of service. Exhibit No. 30, which shows the number of men on assigned runs who worked every one of their assignments, shows the total number of men that worked the complete assignment.

Mr. Stone: Showing what he could have earned if he had been built of twisted wire and kept everlastingly at it?

Mr. Keefe: That exhibit No. 29 shows the possibilities of earnings by the men if they had remained on their respective assignments during the month.

Mr. Park: What was your average of $162 a month for all engineers made up from—that exhibit that showed one trip or two trips?

Mr. Keefe: That $162 was the average of all classes of engineers one month, yard and passenger engines, excluding such men as laid off of their own accord, or were not available for duty during the month—eliminating only those men who made less than $100.

Mr. Stone: Coming back, Mr. Clewer, to the assigned engines or the assigned crew of an engine, do you believe it is possible in times of rush for a man assigned to an engine to follow that engine up to the requirements of the company?

Mr. Clewer: They do do it.

Mr. Stone: They do do it?

Mr. Clewer: Yes, sir; they follow them. I do not mean to say that they follow them month in and month out. They lay off occasionally; but it is possible to handle a heavy volume of business with assigned power.

Mr. Stone: And it also happens that many times you want to double the engine right out again, in times of rush, does it not?

Mr. Clewer: Yes, sir; that occurs.

Mr. Stone: And, of course, you would not allow the assigned crew to go on, on account of the Sixteen Hour Law?

Mr. Clewer: That would depend upon whether or not he could reach his other terminal within the sixteen hours.

Mr. Stone: You are speaking for the Rock Island now?

Mr. Clewer: Yes, sir.

Mr. Stone: A number of the roads in the Western territory, you know, require that a man take his legal rest every time, so that he is available the full sixteen hours. In that case, he would not be allowed to go out until he had had his rest?

Mr. Clewer: No, sir.

Mr. Stone: You do recognize the fact that, from an operating standpoint, it is more economical to have assigned engines, do you not?

Mr. Clewer: I think it is, yes, sir.

Mr. Stone: I think that is all.

Mr. Burgess: Mr. Clewer, I am just interested in one point, in regard to your testimony relative to the pool and regularly assigned engines. As superintendent of locomotive operation, would you consider it a very good performance for one engine to double 187 miles, pulling two fast passenger trains,

one each way, of course, for 365 days in the year, without an engine failure?

Mr. Clewer: Would I consider that a good performance?

Mr. Burgess: Yes, sir.

Mr. Clewer: Yes, sir, I would.

Mr. Burgess: I should have stated, perhaps, that this engine was not manned by a regular engineer. With that modification in my question, running in the pool, you would consider that good service?

Mr. Clewer: Yes, sir, I would.

The Chairman: What do you mean by a regular engineer? That is, different engineers operating?

Mr. Burgess: Yes, sir.

Mr. Park: Two engineers?

Mr. Burgess: No.

Mr. Park: A pool engine?

Mr. Burgess: Yes, sir.

Mr. Park: But that does not intend to convey the impression to the Board, Mr. Burgess, that pooled engines are more apt to make successful trips than assigned engines?

Mr. Burgess: It intends to convey the impression to the Board, which can be verified, if necessary, that I presume that a well operated road can show as little failure in pooled engines as on roads that have regular engines.

Mr. Park: By the performance of one engine?

Mr. Burgess: No, sir; by the performance of all engines; but I was referring to this one particularly, because we could not burden the records by citing cases of all of them.

Mr. Byram: Mr. Clewer, we seem to have gotten a good ways from the main subject, which was, as I remember, hostlers, and I want to ask you one more question in line with those I asked you yesterday in regard to the hostlers and the promotion to the position of hostlers. I believe you said your understanding was that Rule 10 in this book would close the avenue of promotion of roundhouse employes to the position of hostlers?

Mr. Clewer: Yes, sir.

Mr. Byram: Because it requires their ranks to be recruited from engineers and firemen? Do you think the employes in the roundhouses that have heretofore looked forward to the promotion to the position of hostler, as soon as they are qualified—do

you think they would be in favor of such a prohibition, if they had been consulted?

Mr. Clewer: I am satisfied they would not. We have, on our line today, a number of men that have run locomotives and they have fired locomotives, who have met with accidents that have incapacitated them for road service. Now, that might be due to a slight defect of the hearing or the eyesight,—who are now in the positions of hostlers, and if this award was given whereby we would have to select that class of labor from the engineers and firemen, that those men would lose their positions, and we could not take care of that class of labor any more. I can cite you a case out here at 47th street. We have a man out there, hostler, that I should say is in the neighborhood of 55 to 58 years of age. He worked for the Rock Island Company something like 25 years. He was a locomotive engineer and he met with an accident, out on the road, and was dismissed from the service. Just what that accident was or why he could never become reinstated, I don't know, but he came back into the service again. He is of such an age now that he could not hope to go any place else and secure a position as a locomotive engineer, but he is there, acting as a hostler.

Now, if the award was given the enginemen, such men as that would not be able to secure a position of that kind. They would have to take a position at a lesser compensation.

Mr. Byram: I was speaking now about Article 10, which, as I read it, says that hostling positions shall be filled from the ranks of the firemen, and you figure that under that rule an engineer would not be eligible, that is, a man who had been an engineer and had lost his position, would not be eligible?

Mr. Clewer: No.

Mr. Byram: As was the case of the man you cited.

Mr. Sheean: I understood him to say that this man was not an engineer on the Rock Island at the time he was made a hostler, but at the time they made him a hostler he was a man who had been dismissed from the service as an engineer on that road, and would not be eligible.

Mr. Byram: But I was speaking of these young men who were mentioned yesterday, employed as cleaners or wipers, or something of that kind, around the roundhouse, who had gradually worked their way to the position of hostler. Those were

the men I had in mind. I wanted to know if, in your opinion, those men, if they had been consulted, which I understand they had not, would be in favor of the adoption of a rule of this kind which would shut them out from their present position of a chance for promotion to the position of hostler.

Mr. Clewer: They would not agree to it.

Mr. Byram: You think they would not agree to it, if they had an opportunity to speak for themselves?

Mr. Clewer: No, they would not.

Mr. Park: Mr. Carter, I understood your authority to represent the hostlers came from a vote of all the hostlers, and that they had given you such authority. How was that vote taken, was it a verbal or written vote?

Mr. Carter: We do not base our authority to represent hostlers upon the individual vote of every hostler. We base our authority to represent hostlers upon the fact that we are representing hostlers in this movement, and upon the fact that if we do not represent them, they will remain unrepresented, and upon the fact that the only chance these hostlers have in the world to secure decent treatment, is through a movement like this.

I want to correct a wrong impression which evidently is in the mind of the witness. One of the chief purposes of the requests, one of the chief purposes of providing that road hostlers' positions shall be filled from the position of engineers, and other hostlers from the position of firemen, is to provide places for these men who do become incapacitated in the service of railroads, and where such a request as we make is not in effect, they are thrown out of employment entirely. The very argument that seems to be offered against the proposition, we offer in favor of it.

Mr. Sheean: Do you mean that, in the situation here disclosed, where a man who had been an engineer and who had been dismissed from the Rock Island Company and was out of service six months or a year looking for a job, that he would be eligible, if there were such a rule as this in effect?

Mr. Stone: Mr. Chairman, I happen to be with the Rock Island, and I know the case to which he refers. I think it is Jack Breecher, is it not?

Mr. Clewer: Yes.

Mr. Stone: Jack Breecher, about twenty years ago, was on a local train at Tiskilwa, and somebody left a switch open, and a fast stock train came down and headed into them, and Engineer Strong and his fireman were killed. Jack Breecher was discharged twenty years ago for that, and he floated around through the mining camps and through the West for years; I do not think he ever had a job of running an engine again; if he did, I do not know of it. I do know I met him in several mining camps in the West and know of his being there. He finally came back to the Rock Island, and I think the trouble was, I am not sure that he was beyond the age limit—how long has he been out at 47th street?

Mr. Clewer: Six years.

Mr. Stone: Well, anyway, Jack Breecher has never been able to get a job as engineer since the wreck at Tiskilwa, for which he was discharged, and he had been out of the service of the Rock Island for at least fifteen or eighteen years, before he came back to work.

The Chairman: Mr. Stone, what proportion of those now employed as hostlers have had service as firemen?

Mr. Stone: I think Mr. Carter could probably answer that better than I could. I do know this, we have quite a number of engineers, who, perhaps for some defect, are disqualified from road service, who are acting as hostlers. Quite a number of the roads take care of them in that way.

Mr. Park: If the Board granted this request, would it shut out such men as you now describe?

Mr. Stone: Absolutely no.

Mr. Park: How would he get the position as hostler, if he is unable to run an engine and unable to fire an engine?

Mr. Stone: In place of discharging him, they probably will make him a permanent fixture as a hostler.

Mr. Park: But he comes along seeking a position on the railroad, and he has been out of service twenty years, and has no seniority rights and is asking for a position in a job which he is capable of filling, that of hostler. Would not the seniority of the firemen on the road, as to these positions, keep him out of that employment?

Mr. Stone: I have never found the firemen so selfish that

they were not willing to make a place for one of our old disabled men when the request was made.

Mr. Park: But it is a question of absolute seniority.

Mr. Stone: No, there is no seniority about it. In the first place, if the man was good enough as a hostler, after tramping over the country for eighteen years, he was good enough to be put in the position of permanent hostler when you discharged him. That is the answer to that, from my point of view, that is the way I should feel about it. If you felt he was not a proper man for the road service any more, you could have made him a permanent fixture as a hostler or taken care of him in some place, if you wanted to.

The Chairman: Are there any considerable number of men employed now as hostlers who have had service either as engineers or firemen?

Mr. Stone: Yes, sir; on the majority of roads I think you will find there are.

Mr. Sheean: Form 42 shows, in one of the columns, from what ranks recruited.

The Chairman: Was that on Form 42?

Mr. Sheean: Yes, on all of the roads it will show from what other service taken or hired as new men, and running down in that column it shows the particular class of service from which the man now filling the job has been recruited.

Mr. Park: In taking this vote, Mr. Carter, did you form any idea of the approximate number of hostlers employed on the Western railroads?

Mr. Carter: I must confess, Mr. Park, that personally I do not know who were approached and who were not. But we have carefully boxed up and sealed the votes of between 6,000 and 7,000 hostlers, with their own names signed to them.

Mr. Park: And what were they voting on, how did that vote read?

Mr. Carter: This proposition.

Mr. Park: Exactly as it is stated here?

Mr. Carter: Well, their vote was taken in June, I think. No, in July, I believe it was.

Mr. Park: Could you furnish the Board a copy of the vote?

Mr. Carter: No, but I published it in our magazine.

Mr. Park: Then you could furnish a copy of it?

Mr. Carter: We can. I want to explain that I think it was a serious mistake, and so stated in the committee meeting; so far as the Brotherhood of Locomotive Firemen & Enginemen are concerned, we have always sent out a report giving the exact vote, but it had never been the practice of the other organizations, therefore, we did not send it out; but in the next issue of our quarterly report—I just said magazine, but I was mistaken —in the next issue of our quarterly report we published the complete vote showing the number voting for and against, as members of the organization, as persons not members of the organizations, as engineers, hostlers and firemen, and I would be pleased to present it here.

Mr. Byram: Do you show it by railroads, Mr. Carter?

Mr. Carter: Yes, sir. Now, I do not want to be misunderstood. If it should appear, that for any reason whatever, some firemen or some hostlers were overlooked in taking the vote, and that we do not represent them, we take the stand that we do, whether they voted or not. The vote was taken in a hurry. We contend we are legislating for that class, and if because these persons are not invited into our councils and are perhaps overlooked in taking the vote, it is contended that we cannot represent them, then, again, the question comes up of the closed shop, and we will find means of representing them, if that question is contested here.

Mr. Park: Mr. Carter, you obligate your members to live up to your instructions and requirements. Now, what obligation is there on the part of these hostlers to live up to this award, on their part?

Mr. Carter: The only way I can answer that, Mr. Park, is this: That when we take a strike vote, the non-union men give us a much larger percentage in favor of the strike than our own men, and when we strike, they never scab.

Mr. Shea: It could not have been much larger than this last strike vote, could it?

Mr. Carter: I do not think it could have been.

Mr. Shea: Now, Mr. Carter, does the agreement to arbitrate between the organizations and the railroads cover the positions of hostlers as well as engineers and firemen?

Mr. Carter: Now, I did not get that exactly.

Mr. Shea: Does the agreement to arbitrate between the organizations and the railroads cover the positions of hostlers the same as engineers and firemen?

Mr. Carter: Absolutely, yes, except the St. Louis & San Francisco Railroad, which specifically exempted or excepted the hostlers.

Mr. Shea: Well, then, can there be any question about the right of this Board to pass upon that question?

Mr. Carter: I say no.

Mr. Shea: If there is, I think we ought to know it. In fact, I want to know it right now.

Mr. Park: I wanted to know this: If, say, 90 per cent of the hostlers on the Western railroads were not in favor of turning over that position in this way, it might have some bearing in making up the award. If you are going to close the door absolutely to the promotion of roundhouse helpers and wipers that now have an opportunity to fill these positions as hostlers, and fill them satisfactorily to the railroad, that, to my mind, might have some bearing on the question.

Mr. Carter: I hope the Board does not misunderstand our intent. If every word and every line of our proposition is included in the award of this Board, it will not disturb any man at any point who is now filling a position of hostler.

Mr. Park: No; but it will close the door hereafter to those men, absolutely.

Mr. Carter: It cannot close the door hereafter to that man. It might close the door to the man who is coming in on the next ship. They might say to those people who are coming here after this war is over, "Hereafter you will have to fire an engine before you can hostle one."

Mr. Park: I do not understand that there is any other alternative, if this request is granted, and that the position must be filled from the ranks of firemen.

Mr. Nagel: It may not close the door, but it will point out the door by which they must enter.

Mr. Carter: It will. It will say to these men, that until you qualify yourselves to fill these positions of hostlers, you will have to go the route that the others go, up through the position of fireman.

Mr. Byram: Now, Mr. Carter, it seems that there is quite

a body of men here that are affected by this Article 10, that, as I understand it, have not been consulted.

Mr. Carter: I do not understand so.

Mr. Byram: Did you vote these men who are not in the position of hostlers at the present time, the engine wipers and—

Mr. Carter: No, sir.

Mr. Byram: Those are the men that are now being promoted to the position of hostler, on many railroads.

Mr. Carter: Without agreeing that that is the practice on many railroads, I will say that those men were not consulted.

Mr. Byram: That is what I mean. Now, then, it seems that one of the provisions here affects those men very materially, but, as I understand it, they have not been consulted, and yet they will be affected by the award, if it is based—

Mr. Carter: Yes, sir; and we will agree here, with the consent of the railroads, that we will try and get decent wages for those men that are helping the hostlers, the next time. If the railroads will agree to that, we will include them in the next movement.

Mr. Park: That is, the roundhouse helpers?

Mr. Carter: Anybody you want that is handling a locomotive. Anybody that is working in the handling of a locomotive or in connection with it, that the railroad would like to have included in the next movement, we will accommodate them.

Mr. Park: Whether they like to have them included or not?

Mr. Carter: No; we did not include these helpers, because we never have attempted to represent them, but I now understand that their interests are jeopardized, and we will be glad, in our next movement, to include them, if the Managers Committee would like to have them included.

Mr. Byram: Then, I understand from that, that it will be fair to omit that portion of these men from the movement, because they have not been consulted, and leave them for the next one.

Mr. Carter: I do not believe it practicable for us to consult men who may be firemen, engineers and hostlers some day.

Mr. Byram: Is it practical, then, to put rules in here that will affect them, without consulting them?

Mr. Carter: I want to say, Mr. Byram, that we have not consulted anybody except those directly interested; and I want

to say in conclusion, Mr. Chairman and gentlemen, the engineers and firemen of this country believe it is absolutely essential for the protection of their jobs, if not their lives, that competent men be placed in charge of locomotives, when they are out of the jurisdiction of the men who operate those locomotives. We truly believe that the interests of the public, the safety of the public depends upon competent men handling locomotives everywhere.

Mr. Byram: You mean, Mr. Carter, that no man is competent to handle an engine, as a hostler, unless he has served as a fireman and engineer?

Mr. Carter: I would say that any man who is now hostling, and has been for a considerable period of time, should be competent. That is, if he has been hostling long enough to acquire competency, but I would say that these three and four months men are incompetent.

Mr. Byram: You do not claim it is absolutely necessary that a man should fire an engine in order to be competent to be a hostler?

Mr. Carter: I do say that I know of no other means by which he could acquire competency. He could not get it in a correspondence school.

Mr. Byram: You have just said that men who are now hostlers might be competent.

Mr. Carter: The same would apply to an engineer. There are plenty of them, running today, that were never required to undergo any mechanical examination, any examination on the book of rules, any examination on signals, and yet they are competent engineers, and the railroads, on their own volition, have now discovered that in order to make competent engineers means that every man who runs an engine must be able to pass all of these rigid examinations; yet we show you have plenty of hostlers who are competent, but henceforth, before you put a new man in, let us have a man who is competent.

Mr. Byram: The railroad companies do not believe that is necessary—some of them, I believe.

Mr. Carter: They evidently do not.

Mr. Burgess: Mr. Carter, where do the firemen generally come from? Do they come from the farm, or clerkships, or trainmen?

Mr. Carter: It is my position, Mr. Burgess, that very few

firemen come from the shop, for this reason: they generally come from a better educated class of men. Because of the requirements, we find that they are farmer boys who have had the benefit of a good school education, or clerks, or other classes of labor, which we may consider much higher intellectually than we generally find wiping engines or working in the pits. Generally, the men who are working in these pits, around roundhouses, or wiping, are men who are the latest importations; men who usually cannot speak the language, and as a witness testified here, we call them "Mike." We do not know their names and could not pronounce them if we knew them.

Mr. Burgess: Well, it is a fact that sometimes a trainman goes firing, is it not?

Mr. Carter: Not very often. It is the other way. The fireman often goes braking.

Mr. Burgess: Well, in some instances a trainman does go firing?

Mr. Carter: Oh, yes.

Mr. Burgess: And in many instances the boy comes from the farm, as a fireman?

Mr. Carter: Yes, sir.

Mr. Burgess: Now, in order to insure your right to represent firemen, you do not go back and ask these people whether you can represent them, before they get into the position of firemen, do you?

Mr. Carter: No, sir.

Mr. Park: Now, Mr. Carter, it is your idea that you will shut out these foreigners, men that are coming over here and learning the language and becoming American citizens?

Mr. Carter: No, sir. But if they are not good enough for the railroads to hire as a fireman, I think the safety of the public should preclude them from the position of hostlers.

Mr. Park: You contend they ought not to be taken from the shop force? It is preferable to take them from the farm?

Mr. Carter: If you have a man in the shop force that has the educational and physical requirements, as has been set forth in certain exhibits, I should say you ought to give him the advantage, because he has been working for the company.

Mr. Byram: As I understand it, the question of the com-

petency of a hostler is now determined by the railroad company's officers?

Mr. Carter: I am sorry to say yes.

Mr. Byram: You do not think they are competent to select competent hostlers but you think that through making this promotion, through the ranks of firemen, and increasing their pay, the men by that process will be better qualified, from your standpoint, than the men that the company officers could select?

Mr. Carter: Absolutely, yes.

Mr. Byram: You do not think the officers of the company are competent to select competent men for these places?

Mr. Carter: I will not say they are not competent.

Mr. Byram: Why should a railroad officer select a man who is not competent?

Mr. Carter: Because he is cheap.

Mr. Byram: Does it make him any less incompetent?

Mr. Carter: They would rather have an incompetent man at 17 cents an hour, than a competent man at 30 cents an hour.

Mr. Byram: They could not afford to have incompetent men.

Mr. Carter: Yes; they get men that actually don't know straight up. We withheld a great deal of evidence, because I instructed the witnesses, under no circumstances, do you expose the skeletons in the closets of these railroads. If Mr. Sheean asks you, then blurt it out, but Mr. Sheean, after having asked a few of them, stopped asking.

Mr. Byram: There are several thousand hostlers, I believe, on these railroads, and on some of them—perhaps none of them have had much experience as a fireman, and yet these railroads seem to be operating successfully. They could not do so, if these hostlers were as incompetent as you indicate they might be.

Mr. Carter: I think from that viewpoint there is no necessity of any American citizen working in any shop. The Steel Trust and the Colorado Coal Company have found it is very satisfactory to them to run special trains from Galveston to Colorado, or from Ellis Island to the Steel Trust plant in Pennsylvania. From their viewpoint they are amply competent to do anything.

Mr. Park: Well, you might have hostlers who came up into

that position, through the roundhouse, or had three or four or five years' experience, and you also might have a fireman who had very little experience, who would fit into that position. I cannot understand that that fireman is more competent than the man who got the position the other way.

Mr. Carter: In reply to that, I will say a large number of railroads have already recognized our contentions as being proper for the safety of the traveling public, and have rigid requirements.

Mr. Sheean: Mr. Carter, I do not follow you on your statement here about the importation of foreigners. Did you not say, a moment ago, that it was not contemplated by your proposition to disturb a single man, on any of these railroads now holding this position?

Mr. Carter: No, sir; we are not going to do it.

Mr. Sheean: But it is your contention that these men now in these positions, efficiently performing their work and not complaining about their compensation, should have their compensation increased?

Mr. Carter: Yes, sir.

Mr. Sheean: And it is your thought and idea, is it, that the men, wherever they are recruited from, will be more efficient men by a change in compensation?

Mr. Carter: Invariably so, because when the railroads have to pay for efficient men, they will hire no other.

Mr. Sheean: They will hire other men then?

Mr. Carter: Never.

Mr. Sheean: Then I do not follow you on your proposition, or suggestion or thought, that you did not propose to disturb a single man, or alter the duties that he was now performing.

Mr. Carter: We have felt that it would injure our cause, even if we knew a man was already employed in a position and was incompetent, to say we were trying to do any man out of his job, no matter how incompetent he might be.

Mr. Sheean: I would like to get clear whether you are or are not trying to do that man from his job.

Mr. Carter: We certainly are not.

Mr. Sheean: Then it would not make any change in the personnel by which the railroads are now performing these duties.

Mr. Carter: Not so far as we understand, but I will show what will be the effect, Mr. Chairman, and will leave it to your judgment and the judgment of the members of the committee, if they can get this class of people at 15 cents an hour, and this Board, in its judgment, believes that a competent man should be employed at 30 cents an hour or more, that naturally the employer is going to avail himself of the best employes he can get, for the money. I believe that has been the history of unionizing all towns, and I do not want to make a speech, as you sometimes accuse me of, but I want to set this Board right.

Here is a town where the carpenter's wage is anything the employer desires to pay. The union comes in and unionizes that town. They never displace a man, no matter how incompetent he is, but they do succeed in establishing a minimum wage. What is the result of the establishment of a minimum wage, as applied to carpenters? The minute the contracting carpenter finds he has to pay 55 or 60 cents an hour for a carpenter, he picks out men in the future that are worth 55 or 60 cents an hour, and he stops hiring this low class of labor that he can get for 15 cents an hour to saw a board at an angle, instead of straight across. That is the radical result of the standardization of wages. Wages ought to represent efficiency, and it is up to the employer, if it does not.

Mr. Park: What becomes of the fellow that is displaced?

Mr. Carter: As far as the carpenter is concerned, if he is not a carpenter, he drifts out into other employments. If he was cut out for a ditch digger, he generally goes digging ditches, but if he is not cut out for a carpenter, employers won't give him employment for that wage.

Mr. Park: If somebody can dig a ditch a little quicker than he does, he must get out of the ditch digging?

Mr. Carter: That is, I am sorry to say, the policy of getting the most efficient work out of the man for the money.

Mr. Nagel: In effect, Mr. Carter, if you have the petition signed by these hostlers, who are, according to your statement, underpaid, have we not another illustration of a case where men are looking around for a pair of suspenders to lift themselves out of a job with? That is what it comes to, does it not?

Mr. Carter: No, sir; I think not.

Mr. Nagel: Well, one moment. You tell us that you do

not want to make a speech, but I want to congratulate you upon succeeding, as a rule. I would like to stay right with the proposition. You say that you are not interested in relieving these men of their positions?

Mr. Carter: No, sir.

Mr. Nagel: I will accept that; but you also say that if these wages are increased, the necessary result will be that the roads, being compelled to pay better wages, will find more competent men.

Mr. Carter: In the future.

Mr. Nagel: In the future?

Mr. Carter: Yes.

Mr. Nagel: Well, even with respect to these, why not?

Mr. Carter: Because the witness has testified they are better than engineers or firemen either.

Mr. Nagel: If you are willing to accept the witness' statement to that effect, let us accept it and be done with it.

Mr. Carter: If the witness wants to keep these men in service, we don't object.

Mr. Nagel: But you, I think, have clearly taken the position that the roads would take better men, and if the men in the future would be better selected from another occupation, then it stands to reason that they must in fact be better now, and a raising of the wages would necessarily result in the dismissal of these men, and the occupation of their positions by others.

Mr. Carter: I do not understand so.

Mr. Nagel: Well, it seems to me that that stands to reason. I would not need the persuasive force of a speech to satisfy me of that result.

Mr. Carter: Pardon me for making speeches, but when the Board is apparently being misled, it is time for me to make a speech. I will say to you that any man of ordinary intelligence, who has been hostling a long period of time, becomes exceedingly efficient as a hostler. Our attitude is not against the man who has acquired efficiency as a hostler, but the man introduced into the service as an inefficient man.

Mr. Park: Mr. Carter, if that man, after four years' experience as a hostler, should quit the service, thinking perhaps he could get a better position, and be gone thirty days and come

back, after this was in effect, he would be absolutely barred from taking that position again?

Mr. Carter: No, sir; we will have him get a job anywhere that his reference letters will permit him to work.

Mr. Park: That is something else.

Mr. Carter: That is something else. If any hostler is dismissed under this clause and hunts work elsewhere, we will do all we can to get him work, if you will call off the company that sends the letter, to keep him from getting work.

Mr. Park: Well, I do not think that is done.

Mr. Nagel: I wanted to say that I have not so much question of the authority of the Board, under the agreement, as seems to be entertained by some, because it seems to me that the roads and the Brotherhoods of Engineers and Firemen have a perfect right to make an agreement among themselves, that the position of hostler shall be filled in a certain way. That is something in favor of one side, conceded by the other, so the authority, especially with respect to the view, does not trouble me so much in this instance. I was interested in the effect upon the vote of the men who now hold these positions, which you seem to think are secure, and which, to my mind, are somewhat jeopardized if your demand is granted.

The Chairman: Is there any power by which these men, in the event this rule should be adopted, about which I have no opinion just now, could be removed, other than the power that the railroads possess?

Mr. Carter: None whatever, Mr. Chairman and gentlemen.

The Chairman: In other words, would not these men be on the eligible list to the same extent that firemen and engineers if we should adopt your proposition?

Mr. Carter: Yes, sir; with the understanding that these men who are now holding positions will have to acquire efficiency, through firing, before they hostle. That is all the difference.

The Chairman: Is there anything here which would enable the railroads, in the future, if they so desired, to take some worthy man who was in the mechanical department, and use him as a hostler?

Mr. Carter: There is not a line in this proposition that has anything to say about seniority, and that is a matter that will be worked out in the future between the companies and their

men. Where we have seniority rules, Mr. Chairman, we would expect them to be maintained until a different rule is reached.

Mr. Park: Could that man be barred out?

Mr. Sheean: You did not give an answer to the Chairman's question.

Mr. Carter: Please read the question.

(Question read by stenographer.)

Mr. Carter: If he had experience as a fireman or engineer, and there is nothing in the seniority rules now in effect, I would say that there is nothing in this proposition to prevent them.

Mr. Sheean: What is meant, then, by the statement that hostling positions shall be filled from the ranks of the firemen? How could they fill a hostling position from the machine shop, which was the question the Chairman asked you.

Mr. Carter: Let me hear the question again.

(Question read by the stenographer.)

Mr. Carter: I will say that if he is a fireman, and there is no rule in effect at the present time, on any road, that if he had experience as a fireman, why, he could be employed.

Mr. Sheean: Well, I understood the Judge's question to be whether or not the railroad company could fill it from the ranks—could fill the place by a worthy machinist.

Mr. Stone: He did not say that.

Mr. Sheean: Will you read the question?

(Question read as follows: "The Chairman: Is there anything here which would enable the railroads, in the future, if they so desired, to take some worthy man who was in the mechanical department, and use him as a hostler?")

Mr. Park: Now, Mr. Carter, will you answer that yes or no, and then explain it?

Mr. Carter: No and yes. No, if he was not a fireman. Yes, if he had been a fireman.

Mr. Byram: Then, Mr. Carter, I will ask a question. Suppose this man was a machinist and had never been a fireman, but had been experienced in the building of locomotives—knew all about them, and he knew how to handle them, and the railroad company wanted to use him as a hostler, would he be eligible to the position of hostler if he had never been a fireman, if this rule was adopted?

Mr. Carter: He would not, for the reason that we disagree with you as to a machinist being able to handle a locomotive.

Mr. Park: You have heard of machinist engineers?

Mr. Carter: Yes; they had them and abandoned them long years ago.

The Chairman: I had this thought in my mind (of course, due to certain statements that have been made here,) that a large proportion of these people were not machinists; were not men who had had any training, except such training as they got in the roundhouse, and working in the pit, and so on. Therefore, the question in my mind was as to whether there was anything here which would prevent a man, who was well qualified for the position, from occupying it, in the event the railroad should desire to employ him.

Mr. Carter: If he had had experience as a fireman or engineer in handling locomotives we would say that he was qualified; but because a man is a machinist, as the question was propounded, does not qualify him to operate a locomotive any more than a man who builds automobiles can win in these automobile races.

The Chairman: Of course, my assumption was based on the idea that he was qualified to discharge the duties of a hostler.

Mr. Carter: Mr. Chairman, I do not want anything that I have said here to be used against us in this situation. On many roads, we have agreements with the company as to just how these positions shall be filled; and what I have said here would not affect those conditions. It is where they prefer to hire other men and have hired other men. We are not going to disturb any man they have hired.

Mr. Park: If this was made effective, would it not require all the railroads to fill the position of hostler, hereafter, from the ranks of firemen?

Mr. Carter: In the future.

Mr. Park: Absolutely?

Mr. Carter: Yes. And we have plenty of them. There are plenty of them that are crippled and cannot fire engines any longer, because they cannot stand the game, that are thoroughly competent and would be glad to have the job.

Mr. Park: But it would shut those cripples out if they did not happen to be in the service at the time.

Mr. Carter: We are going to take care of them before the company discharges them for being crippled.

The Chairman: It seems to me that it is reasonable that the Board should infer if, in our judgment, we should decide to adopt this proposition, the railroads would not discharge any man who was competent and capable of performing the duties.

Mr. Carter: We are willing to join a petition to them not to do so.

Mr. Byram: Are you willing, then, Mr. Carter, that the railroad officers should be able to employ any man who was competent for the position?

Mr. Carter: What do you consider as competent, Mr. Byram?

Mr. Byram: Well, the railroad officers ought to know something about it.

Mr. Carter: With all due respect to the railroad officer, we disagree. The witness has shown what they consider competent.

Mr. Park: The witness has been a fireman, engineer, machinist, roundhouse foreman; he has passed through all of these respective positions; is he not competent to judge as to a hostler's capability?

Mr. Carter: I am sorry to say no. Any man that will take the class of men that he says are there and put them in charge of these locomotives is not competent to hire help.

Mr. Park: From your point of view.

Mr. Carter: From my point of view.

I am going to say this much, Mr. Chairman: I believe that if this witness could hire a much better class of men, because of the wages paid, he would not hesitate to do so in the future.

Mr. Park: Then that would eliminate these men very rapidly.

Mr. Carter: No.

Mr. Park: If the pay was made higher he would start in at once to cut out all of the—

Mr. Carter: Any time, these men, through their incompetency, would burn an engine, get it in the turn-table pit, run into cars and smash something, the chances are that they would be discharged in the future as in the past; and then, under this

rule, he would hire in the future, probably, a man who would not do these things.

The Chairman: May I ask the witness this: In the event that we should adopt this proposal, would it be your policy to discharge the men that are now employed and employ more competent men?

Mr. Clewer: No, sir.

Mr. Shea: Mr. Carter, if this Board granted the employes' request with regard to the hostlers, there is nothing in the agreement, and there would be nothing in the award, or could be nothing in the award, to prevent the railroad companies from promoting such men as hostlers and helpers, handy men around the shops to positions as locomotive firemen?

Mr. Carter: Nothing.

Mr. Shea: And if they were ambitious to some time become locomotive hostlers, they could work up through that channel and then secure these positions as hostlers?

Mr. Carter: Yes.

Mr. Shea: Just the same as the man who is ambitious to become a locomotive engineer?

Mr. Carter: Exactly.

Mr. Shea: He must start and go through the regular channel.

Mr. Carter: Yes, sir; and every fireman that is placed in the position of hostler would create one vacancy in the hostler's position, for these men to be promoted to.

Mr. Shea: Another thing; this man that Mr. Byram or Mr. Park spoke about, who would be deprived of the position as hostler, would also be deprived of securing a position as engineer, would he not, until he had experience as a fireman?

Mr. Carter: The same rule would apply. If they are hiring men today that have been three months on this side of the water and cannot speak the English language, to run their locomotives, and come in here and say that engineers shall be taken from the ranks of firemen, then these men who will come next year would have the same kick as these men described here.

Mr. Shea: The railroad companies have it in their charge to hire or discharge men at will, have they not?

Mr. Carter: Yes.

Mr. Shea: And if these men whom it has been stated are

now incompetent—if the railroads wish to discharge them, they have the right to do so?

Mr. Carter: Yes.

Mr. Shea: On the other hand, these organizations would not have any hand in discharging anybody?

Mr. Carter: No, sir; our work is trying to keep men at work.

Mr. Shea: That is what I thought.

Mr. Park: That is, men that belong to your organization. You are interested only in those that belong to your organization?

Mr. Carter: I beg your pardon. Some of our hardest fights have been made for men who have never joined our Brotherhood.

Mr. Park: But they did not have the same position as these firemen?

Mr. Carter: If he was a hostler and we had the right on that road to represent the hostlers, it would not matter to us whether he was a member of our organization or not. We would endeavor to induce the railroads to give him the same treatment as the other hostlers who were members of our organizations.

Mr. Sheean: In your organization, you do not require any road experience to take hostlers into your organization, do you? Isn't the only thing you require that a man has moved an engine under steam, in order to make him eligible to membership?

Mr. Carter: Our eligibility requires a man to have been at least six months in the service either as a hostler, a fireman or an engineer.

Mr. Sheean: And the only qualification required as to hostlers is that they shall have moved an engine under steam, is it not?

Mr. Carter: The qualification required is that he shall have been a hostler for six months.

Mr. Sheean: So that, in your own organization, you recognize, as one of the proper elements for membership, the same thing which these railroad companies, in practical operation, recognize as being among the duties of hostlers?

Mr. Carter: I do not get that.

Mr. Sheean: Well, never mind. I will strike out the question.

Mr. Carter: Any man who has been a hostler for six months, and who has served the railroad company to their satisfaction for six months, is eligible to membership in our organization.

Mr. Sheean: No matter whether his only experience has been merely moving an engine under steam, without any road experience or any firing experience, or not?

Mr. Carter: We have had members who only handled one engine at a terminal—

Mr. Sheean: You do, as a matter of fact, under the constitution of your organization, take men in because of their being hostlers, even though they have never fired an engine?

Mr. Carter: Yes, sir.

Mr. Sheean: But you will not let a railroad company employ as a hostler a man who has not fired an engine?

Mr. Carter: We take the position that when a man has hostled six months successfully for the railroad company, he is a hostler.

Mr. Sheean: Is my statement correct, that you take into your organization, as hostlers, men who have never fired an engine?

Mr. Carter: Yes, sir.

Mr. Sheean: But, under your proposition, you will not let the railroad companies employ hostlers who have not fired an engine?

Mr. Carter: That is true; but do not create a wrong impression, Mr. Sheean: Before we take them in, they have hostled long enough to become hostlers.

Mr. Park: You allow him to join the organization, even if he has not fired? He is eligible to join, under the position of hostler.

Mr. Carter: If the company has employed him for six months, we are willing to take the judgment of the company.

Mr. Park: I am glad of that.

Mr. Byram: I do not wish to prolong this discussion, but there is some question in my mind about the portion of Article 10 that reads as follows:

"When such main line or road hostlers are paid the same

rates as engineers in switching service, such position shall be filled from the ranks of engineers."

In case that particular kind of hostling job did not pay as high a rate as an engineer in switching service would receive, the engineer would not be eligible to that position. It would belong to the fireman; is that it?

Mr. Carter: I will say to you that if the engineer is crippled or disqualified on account of color blindness or something of that kind, the rule would not apply. We will make a position for him anywhere.

Mr. Park: You would make a special dispensation, then, in that individual case?

Mr. Carter: You may call it that.

On the other hand, however, we do not want to have the engineer earn less money than a switching engineer. It is not fair to him to say that here is a man who has served as an engineer for fifteen or twenty years, and, because of his age, perhaps, his sight has failed him, he must go in here and work for less than a switch engineer does; that is not fair. I think a man who has been that long in the service is worth at least what the switch engineers are paid. He is getting it for hostling, road work, and so forth, and we are trying to fix a minimum pay for that engineer.

Mr. Byram: That must be not less than the engineer in switching service would receive; that is the qualification that determines whether the position shall be filled by an engineer or fireman—the rate of pay?

Mr. Carter: I will explain why that is. We had hoped to get switching engineers' wages for all road hostlers, because we believed that they should receive that high rate of wages. They are men who should be thoroughly competent, and with the understanding that we would get the same wages for the road hostlers that we get for the switching engineers, we wanted engineers to fill those positions.

The Chairman: Is there anything further of this witness?

Mr. Sheean: Yes; I wanted to ask a few questions.

Mr. Stone: Of the witness or of Mr. Carter?

Mr. Sheean: Of the witness.

Mr. Stone: Before we get away from this important feature, I wanted to say a few words. I am not going to make a

speech, but I wanted to say a few words for the B. of L. E. The B. of L. E. will take the position that it legislates and fixes and makes rules and working conditions and rates on any railroad where it has its organization; and the time to have raised this point, whether we are legislating for engineers, firemen or hostlers, was before they signed this agreement to arbitrate, and not now. This entire discussion has no place before this Board at this time. That was settled long ago, when the strike was only 48 hours away, and when we signed the agreement down at Washington that we would arbitrate certain questions. That agreement stands today before this Board, and, regardless of the personal opinions expressed here, that question is before this Board for settlement. I do not doubt at all that they can bring in individuals who, through fear or coercion, or under pressure, will testify that the organization does not represent them; but there was no question about what this organization represented last August when we signed this agreement, and there is no question about it today.

I want to call your attention to one thing in regard to this hostling proposition: the Chicago & North Western, and the Chicago, Milwaukee & St. Paul, both have agreements with the Brotherhood of Locomotive Firemen and Enginemen, that a man must have three years' experience as a fireman before he can be a hostler; so that it is evident, from their standpoint, that they consider it a responsible position. In that respect they disagree with Mr. Clewer, who stated on the stand, at page 4525:

"I do not consider that it requires but very little ability for a man to be able to start and stop a locomotive at a terminal point with safety."

And again he says, in an answer to a question of mine, as to what examinations hostlers were put through on the Rock Island, "There is not any examination that is laid down to govern that feature. They are passed upon by the hostler whom they have been working under." I understood him, in his direct testimony, to say that a man who had been a hostler's helper for three months qualified as a hostler. Then, this man who has worked three months as a hostler's helper is the man who passes upon the qualifications of the next man who is going to hostle. It is true that the roundhouse foreman puts his stamp of approval upon it. The roundhouse is probably busy inside,

and never has seen the man outside, and does not know what he is doing, in these big terminals. He has his own troubles inside, getting the power and equipment ready. But that is the type of man they propose to pass upon the fitness of the man for that position. And we believe the jobs of our men and the safety of the public demand a different type of man from that.

Mr. Sheean: Is it not true, on both the North Western and the Milwaukee, under the provisions pertaining to hostlers or engine despatchers, as they are called, both the companies and the organizations have interpreted that agreement as pertaining to the men who, during the entire day, do nothing other than the handling of engines under steam, and that neither of these roads, with the provisions in the schedules, have ever placed any such interpretation as is now being contended for, that a man who, at any time during his day's work, even though it be for a half hour, handles an engine under steam, is a hostler.

Mr. Stone: That is perhaps true. I am not competent to speak on that. I know this, that with that agreement standing in both those schedules, that a man should have three years' experience as a fireman, a number of our old men who were disabled from service, or from some cause were disabled from working as engineers, have been taken care of under that agreement.

Mr. Sheean: And given work, where they had nothing to do in their entire service, except handling engines under steam, and that on the same roads they do have these men, roundhouse foremen, men at small points, who perform all of the work in connection with the handling of an engine, or a number of engines, as a part of their day's work.

Mr. Stone: Mr. Chairman, it was absolutely necessary to make that rule read that way. This is not our first experience in the arbitration line. We have learned, through sad experience, that it is absolutely necessary to nail these rules down and rivet them on every corner, or they find out it means something else. And that is why we particularly specify in this rule and make it read that way.

Now, another thing: In the Eastern Arbitration, after the firemen got through and got their award they changed the name of the hostler, and called him a foreman or despatcher or something else, to keep from paying him the award. And they will do the same thing in the West. This extreme solicitude for

these men who are coming after is remarkable, you know, when we realize the great quantity of men who are out of employment today, and who are on the scrap pile because of the age limit. And you do not hear anybody worrying much about what is going to become of them after they have given the best part of their lives to a company, and through some slight mistake or surprise test, they are discharged. They are down and out and done. They have spent the best part of their lives fitting themselves for this particular vocation. And yet we have taken up half the morning worrying about some man, who perhaps cannot talk the English language, and who is coming next week or next year into the position. I believe it is clearly within our right to define how the door is to be opened so he can come in.

Mr. Sheean: I would like to get clear one question which was talked of here. I notice, on turning to this form, so that the Board may understand, in case they want to refer to it, as to where these different men are recruited from; this is the Burlington form, and, taking Galesburg, they have, according to this report, one engine inspector, whose payroll designation is engine inspector, paid $110 a month, who puts in two hours a day in handling engines in and out of the roundhouse, one hour in handling engines between the depot and roundhouse, and seven hours in miscellaneous work. He was recruited from the ranks of the firemen.

The next man at that point is a $90 a month man, who, on the payroll designation, is called an engine tamer, who handles engines in and out of the roundhouse for five hours, and for two hours handles them between the depot and other points, and for four hours of the day acts as a foreman. He was recruited from the roundhouse force.

Mr. Carter: May I ask a question, Mr. Stone?

Mr. Stone: Surely.

Mr. Carter: Mr. Sheean, if this arbitration fixed the rates of hostlers, the fact that he is an engine tamer would deprive him of the award?

Mr. Sheean: No, Mr. Carter, not if they should adopt your patented definition of a hostler, to be a man who, at any time, moved an engine under steam. If the Board blindly fall into the error of giving the award which is here asked for, that man handling the engine between the roundhouse and the station,

making a main line movement for two hours each day, would have to take a rate of $4.75 for each one of the 31 days, because he is two hours each day on the main track. And, under your proposal, if they blindly adopted it, this man who is now working for $90 a month, would have to be paid 31 times $4.75.

Mr. Carter: If it is necessary to have that man do main line work, we want him to get main line pay.

Mr. Burgess: But, Mr. Sheean, why do you use the words "If the Board blindly fall into the error"?

Mr. Sheean: Because I want to file with the Board, and will ask leave to do so now, the interpretations made by Dr. Neill, on the Eastern Award, where they made the award without specification by the Arbitrators as to just what they meant and why they meant it, so that the Board may have before them the endless complications which arose from an award of that sort. I will ask leave to file copies of that interpretation of the award.

Mr. Burgess: But is it the time now to give the Board the ruling?

Mr. Sheean: No, I would not have done so, except in response to the question by Mr. Carter.

Mr. Shea: I want to ask you a question: Just repeat the condition there of the man at Galesburg, where he works so many hours as hostler and at other duties.

Mr. Sheean: Five hours a day handling engines in and out of the roundhouse, two hours handling engines between the depot or the freight yard and roundhouse, making main line movement for two hours each day, and four hours acting as a foreman.

Mr. Shea: Is that time—

Mr. Sheean: He is an eleven hour a day man, and they made distribution of his eleven hours in that way.

Mr. Shea: Intermittently?

Mr. Sheean: Yes.

Mr. Shea: What I mean is it five hours in the aggregate, all day?

Mr. Sheean: Yes. We attempted, and as I explained yesterday, you will notice certain inaccuracies which Mr. Carter has doubtless seen on the form, because of the apparent mere cost distribution, but our effort was to find out how much of

that eleven hours he had these things to do, and how his time was distributed.

Mr. Shea: Where it is charged to miscellaneous, what character of work was that?

Mr. Sheean: That was where I could not think of anything else he could possibly do in and about that kind of work, and that possibly, therefore, it would not fall under any one of those 26 headings.

Mr. Shea: He may be knocking fires.

Mr. Sheean: No, we have one column for actually cleaning and knocking fires. This man was not in that. There, at Galesburg, the next class shows eight who took a rate of 24 cents an hour, at this one terminal.

Mr. Park: What was his title, engine inspector?

Mr. Sheean: No, the engine inspector has $110 a month. The engine tamer has $90 a month.

Mr. Park: Taking in engines?

Mr. Sheean: Yes. Those with the hostler designation have 24 cents an hour, and they are all recruited from the roundhouse force except one, who was recruited from the ranks of the firemen.

Then there are the fire cleaners, some of whom handle the engines on and off, about an hour each day, and the remainder of their time is put in in the actual cleaning and knocking of the fires. Those men are recruited from the roundhouse force except there was one who was a car repairer before taking up this line of work.

Mr. Shea: Is there any time charged for putting supplies on an engine and taking off supplies and tools?

Mr. Sheean: Yes. Column 15, at Galesburg, does not show that anyone who handles engines—column 15 is spotting and performing actual work of supplying engines with fuel, sand and water, and column 17, equipping with other supplies.

Mr. Carter: Mr. Chairman, I sincerely hope that if we tenaciously contend with counsel for the railroads for our points in this matter that we will not be worrying the Board. Counsel for the railroads—

The Chairman: Let it be understood, once and for all, that this Board is here to get all the facts possible.

Mr. Carter: Thank you.

The Chairman: And it is not at all necessary to make any apologies as to the time you may see fit to use, within your discretion, on either side.

Mr. Carter: Counsel for the railroads just introduced a ruling of Dr. Neill, and what was done in the East. Mr. Stone has just explained the necessity for this request, and I am going to beg that Mr. Phillips, who represented me in the application of the Eastern Award, be permitted to explain to you in brief manner how the railroads tried to apply that Award.

Mr. Sheean: Does not that all appear in Dr. Neill's statement of the controversy, and the questions that were to be interpreted?

Mr. Carter: No, it does not appear. You just introduced that question, and with your permission, I would like Mr. Phillips to explain that matter.

Mr. Park: Are we to hear the other side of it?

Mr. Carter: Yes.

Mr. Sheean: You will not, from me, because I know nothing about it except the record which is made here, by the written agreement of the parties, and the rulings made upon it.

Mr. Carter: I want to submit that I did not introduce the question. Mr. Sheean introduced it.

The Chairman: Now, as a distinguished gentleman once said, let us see "where we are at." What is it that you wish to introduce, Mr. Sheean:

Mr. Sheean: I have already filed the Award in the Eastern Firemen's case. Subsequent disagreements arose as to the meaning of certain parts of the Award, and by mutual agreement those disputed were referred to the Hon. Charles P. Neill, as referee. Dr. Neill made certain interpretations and rulings upon that award, and so as to supplement the papers already on file, I ask leave to file these rulings of the referee on that question.

Mr. Park: Are they in the arbitration?

Mr. Sheean: Practically, yes.

Mr. Carter: I will withdraw my request, with the understanding that Mr. Phillips will go on the stand when it comes our turn.

The Chairman: I was going to suggest that it would be more regular for you to introduce Mr. Phillips when you come to your rebuttal testimony.

Mr. Carter: Yes.

Mr. Sheean: We ask leave to file sufficient copies of this for the Board.

Mr. Carter: We would like to have a copy.

RE-DIRECT EXAMINATION.

Mr. Sheean: Yes, I think we have some more, so that we can supply extra copies.

Mr. Clewer, this morning, in talking about your knowledge or experience in the use of an oil burner, and that you had acquired knowledge on a motor car, at the time of the change from coal to oil on this Fort Worth Division, what experience did you have there?

Mr. Clewer: I had the same experience in the handling of the oil burner, because I followed each of those engines as they were put into service.

Mr. Sheean: Did you actually ride on those engines?

Mr. Clewer: Yes, sir, ran and fired them both alternately.

Mr. Sheean: Then, do I understand that on all of the motive power on that division, after the change was made from coal to oil, that you actually fired all of those engines, each one of them?

Mr. Clewer: Each one that I rode, yes, sir.

Mr. Sheean: And actually acted as engineer on those engines, also?

Mr. Clewer: Yes.

Mr. Sheean: Covering what period of time did you have this experience with the oil burning engines?

Mr. Clewer: I think it was about the first of 1911 when those engines were transferred to that division; that is, the oil burners substituted for the coal burners; and they were there in service when I left the division, in November, 1912.

Mr. Sheean: Then, during all of that time, you had the same responsibility for the operation of those oil burning engines that you had had for the previous coal burning engines?

Mr. Clewer: Yes, sir.

Mr. Sheean: You say that you personally operated, both as fireman and engineer, every one of those engines on that division?

Mr. Clewer: I have ridden every one of the oil burners in that territory and have fired and run each of them.

Mr. Sheean: And, during all of this period of time while you were on that division, were there different types and styles of power?

Mr. Clewer: Yes, sir.

Mr. Sheean: And weights on drivers?

Mr. Clewer: Yes, sir.

Mr. Sheean: Then you are not speaking from a mere theoretical knowledge, but from actual operation on engines with different weights on drivers?

Mr. Clewer: Yes, sir.

Mr. Sheean: And how high did the weights on drivers go on those oil burning engines?

Mr. Clewer: I would not be positive, but it was on the Consolidation type of locomotive that, I think, were about 177,000 pounds on drivers, right at 177,000 to 180,000 pounds.

Mr. Sheean: Now, Mr. Clewer, the responsibility with reference to observation of signals and everything else, is just the same on an oil burning engine as it is on a coal burning engine?

Mr. Clewer: No difference.

Mr. Sheean: No difference whatever in that respect?

Mr. Clewer: No.

Mr. Sheean: But is the physical work on the oil burning engine, no matter what its weight on drivers, less than the physical labor on the lightest coal burning engine in that class of service?

Mr. Clewer: There is always more physical labor attached to firing any coal burner, as compared with an oil burner of the same type.

Mr. Sheean: So that, in the particular class of service where a minimum rate is fixed for an engine in that class of service, the responsibility of the fireman on a coal burning engine is just the same, and his physical labor is less, than on the lightest class of coal burning engines?

Mr. Clewer: Yes, sir, it is.

Mr. Sheean: I am not sure that I followed you exactly, Mr. Clewer, in your description yesterday of just what this block was in which you said that the colored hostlers performed

their work near Little Rock. You spoke of it as being absolutely safe?

Mr. Clewer: Yes, sir.

Mr. Sheean: But I could not follow you as to just what you meant by an absolute block, was it, that you called it?

Mr. Clewer: I called it a positive block.

Mr. Sheean: A positive block.

Mr. Clewer: It is a positive manual block. I can probably explain that better by saying that that piece of track over which these hostlers handle these locomotives between Little Rock passenger station and the Biddle terminal is a main line. That piece of track, however, is governed by the positive manual block system.

The Chairman: What do you mean by that?

Mr. Clewer: I will explain that, I was going right along to explain that. The hostler, before he can take an engine from the Biddle roundhouse to Little Rock, reports to the operator at Biddle. This piece of track between Biddle and Little Rock is governed by the block system. He reports to this office for permission to use this piece of main track between Biddle and Little Rock. Now, it being a positive block, there can but one train occupy that block at a time. Therefore, if there is any one in that block, he will not be permitted to go out onto the main line. But, as soon as the block is clear, and the Little Rock despatcher notifies this operator at this end of the line that he can now permit this hostler with his engines to enter that block, he gives him a clearance, and he does so.

The Chairman: I understand a block to mean, then, that there is a certain portion of the track that no other engine is permitted to enter upon, or no other train?

Mr. Clewer: No other train.

The Chairman: In other words, no train is permitted to enter, other than the train occupying the block?

Mr. Clewer: That is the idea.

The Chairman: That is what block means?

Mr. Clewer: That is the idea. That is a positive block under which this particular piece of track is operated.

Mr. Sheean: And when he gets to the other end of the block, what is done?

Mr. Clewer: After he has this permission, he will take

those engines over this piece of main track, entering the side track at the Little Rock station, and report that he has arrived. The despatcher at Little Rock is then in a position to open the block, for a movement in the opposite direction, if he so desires.

The Chairman: Is it possible for a collision to occur when a train is in the block?

Mr. Clewer: It could not occur, unless the block operator had failed to perform his duty.

Mr. Sheean: So, if there was any failure there, it would be the failure of the block operator?

Mr. Clewer: Yes.

Mr. Sheean: In any case, and not of the man operating the engine.

Mr. Clewer: It would have to be the total failure of either the train despatcher at Little Rock or the operator at Biddle, because he could not permit anyone to enter that block while it is being occupied by this hostler with his engine.

Mr. Burgess: You say he gets a clearance, Mr. Clewer. What is a clearance? A signal?

Mr. Clewer: No, sir, there is a train order signal located at the station there, and he is given a permissive form to enter that block; it is a notice to this hostler that he has the block between Biddle and the station.

Mr. Burgess: By a signal, is it?

Mr. Clewer: No.

Mr. Park: It is a regular written document.

Mr. Clewer: Yes, sir, that is it.

Mr. Burgess: Did you ever hear of an engineer passing one of these block signals or forgetting his orders and getting within the block?

Mr. Clewer: I don't know—

Mr. Burgess: On any railroad?

Mr. Clewer: Oh, that has occurred, yes, sir.

Mr. Burgess: It is possible, then, for this man, operating this engine, to ignore the orders, is it not?

Mr. Clewer: No, sir, it is not, because he has positive instruction that he will, under no circumstances, enter upon the main line with that locomotive, until he first, in person, calls at the office for instructions.

Mr. Burgess: Would you not consider a 31 order positive instructions to meet a train at a certain point?

Mr. Clewer: Certainly so.

Mr. Burgess: Did you ever hear of an engineer going by his meeting point?

Mr. Clewer: I have.

Mr. Burgess: Is it not quite possible these men could pass or ignore their written instructions, the same as any other man?

Mr. Clewer: I do not know what they might do, but I know they never have done it.

Mr. Burgess: Oh, thank you.

Mr. Park: Do they meet trains between these two points?

Mr. Clewer: Sir?

Mr. Park: Do these hostlers operate under 31 orders and meet trains between these two points?

Mr. Clewer: No, sir.

Mr. Park: They simply have the absolute use of the track between the two points during a certain interval of time?

Mr. Clewer: Yes, it being a positive manual block, operated by block signals and controlled manually.

Mr. Burgess: If a train was coming in there having time card rights, and if this despatcher or operator, whatever you may term him, did not give this man operating the locomotive a clearance, and he went on, a collision would occur, just the same, would it not?

Mr. Clewer: That could occur there, just the same as it could on any piece of main track where someone had failed to obey their orders.

Mr. Burgess: Surely.

Mr. Clewer: If this hostler had this piece of track, and an engineer would deliberately go by that signal and enter upon that main track, there naturally, in all probability, would result a collision.

Mr. Burgess: Exactly.

Mr. Clewer: But it would not be the fault of the hostler.

Mr. Burgess: It would, if he ignored his orders, would it not?

Mr. Clewer: He does not get any orders.

Mr. Burgess: Well, the clearance, or whatever you term it.

Mr. Clewer: He has never done that.

Mr. Burgess: No; but it is possible, the same as on any other railroad, is it not?

Mr. Clewer: Oh, he could take the engine out of the terminal point, of course, without receiving those instructions. But he never has done so.

Mr. Park: Do the instructions require him not to go on the main track without written authority?

Mr. Clewer: They do. He has positive instructions, under no consideration will he enter upon the main track until he first reports in person to the operator at Biddle or the train despatcher at Little Rock. After he receives his instructions, whether or not he can enter upon that main track, he then returns to his engine and occupies the main track, if the instructions are such that he has this block.

Mr. Nagel: In other words, you have found no rule by which you can eliminate the possibility of human mistake?

Mr. Clewer: That is the idea.

Mr. Nagel: And the engineers and the operators and the hostlers are all subject to that possibility?

Mr. Clewer: Yes, sir, they are.

Mr. Nagel: How much does the operator get per month?

Mr. Clewer: That operator gets about $75 to $85 per month. I cannot say positively.

Mr. Nagel: How much does the train despatcher get?

Mr. Clewer: The train despatchers are paid $150. They have a scale of wages that I am not familiar with, but I know it is about that rate.

Mr. Sheean: And, as to all of the possibility of human error, you have operated all the years that you have described there with these colored men performing this part of their work efficiently, and without having endangered anybody's life or limb?

Mr. Clewer: Yes, sir.

Mr. Sheean: And in addition to performing this hostling work, they have been willing to do this other work outside of the time that they were running on the road, the work which you described yesterday?

Mr. Clewer: Yes, sir.

Mr. Sheean: Which I do not car to repeat.

Mr. Clewer: Yes, sir.

Mr. Sheean: I think that is all.

Mr. Burgess: I would like to ask one question, Mr. Stone. I was interested in your statements to Mr. Sheean, relative to the oil burner. Having never run an oil burning engine, won't you please describe briefly what the fireman does while he is on it, how he controls the oil?

Mr. Clewer: I did that yesterday, but I will repeat it again for you.

Mr. Burgess: I would be glad if you would, as I was interested in it.

Mr. Clewer: You want to know how he controls the oil from the receptacle in the tank to the burner?

Mr. Burgess: What I am particularly interested in is this: I understood you to state, yesterday, that the fireman's duty on the oil burner was to continually regulate the valve that admitted the oil to the fire, in accordance with the way the engineer was working the engine. Is that right?

Mr. Clewer: Yes, sir.

Mr. Burgess: When the engine is working, he is required to have his hand continually on this valve, or operate it continually; am I right about that?

Mr. Clewer: Well, it is not necessary, no, sir, that he should sit there ahold of the valve, if the engine is working at a given cut-off. If there are no varying conditions, not calling for any change, he will not change the firing process.

Mr. Burgess: But if the engineer was changing the cut-off, anywhere from six to eighteen inches, or giving her longer cut-off than that, if he was firing properly, would he continually move that valve as the engineer moved the reverse lever and the throttle?

Mr. Clewer: He would fire the engine just in the manner in which the engine was performing. If the cut-off which you speak of was changed, he naturally, to meet up with that condition, would change the position of that valve and change his firing conditions.

Mr. Burgess: Then it would require him to be constantly on the alert, or where he could reach this valve all the time, would it?

Mr. Clewer: Well, he is sitting up on the seat box by the cab window, on the left side, and the valve is located right here

at his right hand. He can sit here and have all the room that he wants to look out of the window or forward, and yet handle that valve without making any move.

Mr. Burgess: But he is required to be there continually, is he not?

Mr. Clewer: He should be; yes, sir.

Mr. Park: He would have to stay awake, would he not?

Mr. Clewer: Yes, that is the hardest job he has got.

Mr. Burgess: Then the fireman firing the oil burner would not have this six hours and five minutes on a spread of eight hours and forty-seven minutes, that he does receive when he is firing a coal burner?

Mr. Clewer: Would not have the spread of performing no labor at all, do you mean?

Mr. Burgess: No, we have an exhibit which shows that out of every eight hours and forty-seven minutes, the fireman on a coal burner has six hours and five minutes either to sit on the box or stand at ease in the gangway. Now, on the oil burner he would not have that six hours and five minutes, would he?

Mr. Clewer: He has got all his time on the seat box doing practically nothing.

Mr. Burgess: He could stand at ease on the gangway? He would have to be working this valve?

Mr. Clewer: He could, yes, sir; I have seen them ride in the gangway.

Mr. Burgess: He could ride in the gangway and handle this valve?

Mr. Clewer: Not handle it. He would set it and leave it alone, because the engine would probably be on a hill, that worked—

Mr. Burgess: I understood you to say that he had to be on the alert all the time to move this valve in accordance with the way the engineer was working the engine.

Mr. Clewer: I said, Mr. Burgess, that he operated the valve in accordance with the way the engine was operated.

Mr. Burgess: Yes.

Mr. Clewer: I have seen them, as I said, stand in the gangway; because an engine may be down to a twelve or fourteen notch cut-off, with a tonnage train behind it, crawling up a one

per cent grade, and she is walking along there at a nice rate of speed, under which there would be no occasion for a change in the position of the cut-off; therefore, there would be no occasion for changing the position of the firing valve.

Mr. Park: That would last for an hour, possibly, would it?

Mr. Clewer: Yes, it would probably last forty to forty-five minutes, depending on the length of the grade, of course. On a one per cent grade that we operate these oil burners over, 45 to 50 minutes.

Mr. Burgess: Are we to understand, then, that the fireman can set this valve, and if the engineer does not change his cut-off, he can stand in the gangway or do anything else for one hour?

Mr. Clewer: That depends altogether on the piece of track he is running over. The engineer might not change the cut-off, but he might change the position of his throttle.

Mr. Burgess: Yes.

Mr. Clewer: That would govern—

Mr. Burgess: You hardly think that ever does occur, in practical railroading, to the extent of one hour, do you?

Mr. Clewer: Well, it has occurred for a period of a few minutes. I do not know whether it would run a total hour or not. It is possible a man would not stand out there in the gangway an hour; but he would be out there quite a little time.

Mr. Burgess: Can you imagine a situation where an engineer would have an engine in the twelve or fourteen notch cut-off and not change the throttle or reverse lever for one hour?

Mr. Clewer: Yes, sir.

Mr. Burgess: On what railroad?

Mr. Clewer: There are lots of railroads in this country where they work at that for a period of hours.

Mr. Burgess: There are?

Mr. Clewer: Yes; and don't do anything else but work in the corner.

Mr. Burgess: In the corner.

Mr. Clewer: Practically the corner—beyond the fourteen notch cut-off.

Mr. Burgess: The fourteen notch cut-off is in the corner, on the Rock Island?

Mr. Clewer: No, sir; it is not, by a good deal.

Mr. Burgess: You are speaking, now, as a practical railroad locomotive engineer?

Mr. Clewer: Yes; I am talking about a practical locomotive engineer.

Mr. Burgess: Thank you.

Mr. Park: Would it be possible, if this valve were on the engineer's side, saying nothing about watching signals or other work the fireman does—would it be within the range of possibility for the engineer to manipulate that as well as to run the engine?

Mr. Clewer: No, sir; he could not handle it.

Mr. Park: As described by you on this motor car?

Mr. Clewer: Oh! On this motor car they do do that, yes, sir; but on the locomotive, of course, it could not be done, because the firing valve is over on the opposite side of the boiler head.

Mr. Park: It could be moved over, could it not?

Mr. Clewer: It could be moved over, yes, sir.

Mr. Park: Would it possible to make some invention to make it all work automatically?

Mr. Clewer: He could operate it, yes, sir.

Mr. Park: Does the engineer ever call the attention of the fireman to the fact that he is going to change the lead, or make any change in the cut-off, or anything of that kind?

Mr. Clewer: No, sir; he will not make any remark to the fireman. The only time he will ever say anything to the fireman is that he will call attention to the fact that he is going to shut off, especially if it happens to be an unexpected stop.

Mr. Park: If they have run by a good many stations without stopping, and it occurs to the engineer that he is going to stop, and he knows he is going to stop at some station, he indicates that to the fireman, does he not?

Mr. Clewer: Yes; he will call the attention of the fireman to the fact that he is going to shut off the throttle.

Mr. Burgess: Is it the practice for the engineers on the Rock Island to change the lead on the road?

Mr. Clewer: I did not say anything about engineers changing the lead on the road, or any place else.

Mr. Burgess: I think Mr. Park asked you that question.

Mr. Park: I will change that to "cut-off."

Mr. Burgess: Whether it was customary for the engineer

to call the attention of the fireman when he changed the lead. That was the question.

Mr. Park: Make that "cut-off," then.

Mr. Clewer: I had understood the question from Mr. Park to refer to the cut-off.

Mr. Burgess: Thank you.

Mr. Clewer: I think it would be very unreasonable to think that the engineer would tamper with the lead on an engine.

Mr. Sheean: Mr. Clewer, I think you said that when the engineer would change the cut-off, the fireman on an oil burning engine would be watchful to adjust his fire to the new situation?

Mr. Clewer: Yes.

Mr. Sheean: On a coal burning engine, when the engineer changed the cut-off, the fireman would adjust himself to that situation by shoveling coal?

Mr. Clewer: He would. It is just a piece of co-operation that is taking place in the deck of a locomotive; the two work together, the fireman and the engineer, properly and economically, and he will naturally follow the work of the engineer on the other side in handling the cut-offs.

Mr. Sheean: That is, on a coal burning engine, where the engineer changed the cut-off, the fireman would adjust himself to the new situation by means of shoveling coal?

Mr. Clewer: Yes.

Mr. Sheean: On an oil burning engine, he adjusts himself to the new situation by turning the ratchet valve?

Mr. Clewer: Yes.

Mr. Sheean: That is the difference between the two, is it?

Mr. Clewer: Yes.

Mr. Sheean: Otherwise the operation is the same?

Mr. Clewer: The same thing.

Mr. Sheean: That is all.

RE-CROSS EXAMINATION.

Mr. Stone: Do you think it takes as much intelligence to fire an oil burning engine as it does to fire a coal burning engine?

Mr. Clewer: I think it requires intelligence to fire an oil burning engine the same as it does to fire a coal burning engine. The only difference between the two is the physical labor: There is just as much required of the man firing an oil burning engine,

so far as economy is concerned, and the proper generation of steam in the boiler, or in other words, holding near the maximum boiler pressure, in order that the engine will be a 100 per cent engine, as there is on the coal burning; but there is a difference in the labor performed.

Mr. Stone: Let me see if I have got this right. Mr. Tollerton's exhibit shows that the man on the coal burning service, on 1,556 test runs, only worked, all told, two hours and 42 minutes, or 31 per cent of the time; and of that 31 per cent only 19 per cent was consumed in shoveling coal; and 69 per cent of his time he is standing in the gangway at ease, or sitting on the seat box, performing no service. Now, how much less than that, yet, will be the oil burning fireman? Are we to understand that he sits on the seat box all the time, 100 per cent of the time, and performs no manual labor at all?

Mr. Clewer: He has not a thing to do but to sit on the seat box, unless he is using the sand, which would occur probably three or four times on a 100 mile division, and it would take him about two and a half minutes to do that duty. Then he has nothing else to do but to sit on the seat box and handle that firing valve, which does not require any physical labor.

Mr. Stone: Then, in the case of the oil burning engine, instead of two hours and 42 minutes, we have it down to two and a half minutes to the trip, that he is performing manual labor?

Mr. Clewer: I said it would take him about two minutes and a half to sand the engine once. Just how many times he would do that in a trip would depend upon the operating conditions.

Mr. Park: What would this other man do on the engine, then, that they are asking for?

Mr. Sheean: The second man was to be on the coal burning engine.

Mr. Clewer: A man firing an oil burner would sand his flues out at the commencement of the trip, and if he was on the road eight, ten or twelve hours, he would probably repeat that four to five times during the trip. That would depend upon his judgment, entirely, as to how often that ought to be done.

Mr. Stone: Just what do you define as manual labor, Mr. Clewer? What is your definition of manual labor?

Mr. Clewer: Well, I do not know whether I would have the

right version of that or not. I should say a man performing any labor would be performing manual labor.

Mr. Stone: I am particularly interested in that situation down at Little Rock, Mr. Clewer—

Mr. Clewer: I am glad to talk to you about it, if I can give you any information.

Mr. Stone: It is a new idea to me that a manual operative block is a positive block. I do not believe it is so regarded by the railroads of the country. First, you said an automatic block, and then you said an absolute block, and then a positive block.

Mr. Clewer: I didn't say automatic block.

Mr. Stone: Well, first, an absolute block, and then a positive block.

Mr. Sheean: I said "absolute" and he corrected me.

Mr. Park: Isn't the difference between a positive and a permissive block this: that one that permits a second train to enter that block, under one system, and under the other, absolutely no other train is permitted in the block?

Mr. Stone: And in both of them you have the human factor, with the manual operative block.

Mr. Sheean: Of course, the human equation is always there.

Mr. Stone: Not so with the automatic block, is it?

Mr. Sheean: Oh, yes. A man can run by an automatic signal.

Mr. Stone: These hostlers can not. They cannot get by this positive block—there is no danger of that at all.

Mr. Sheean: The witness says they never have; and the chances are, as I understand it, that if he has to get a clearance, he is not apt to make that mistake.

Mr. Stone: Then the fact remains that if you had enough positive blocks down the road, you could run this fellow clear through the division, and make an engineer of him; is that right, Mr. Clewer?

Mr. Clewer: I would not want to make an engineer of him; no, sir.

Mr. Stone: But haven't you already made an engineer out of him? You are running him under orders, with the positive block—

Mr. Clewer: The operation, as I see it, is perfectly safe.

It could not be any safer, in my opinion. There never has anything happened, and, to my mind, there is only one way that an accident could happen, and that would be where the train despatcher at Little Rock, or the operator at Biddle, would fail to do his duty.

Mr. Stone: Then the intelligence of the man in charge of the engine has nothing to do with the failure of handling that movement?

Mr. Clewer: No, sir; if they put him in this block, and permit no other train to enter there, the fellow handling the engine is not responsible in any way.

Mr. Stone: Suppose he does not stop when he comes to the end of that block, then what would happen?

Mr. Clewer: Then, that would be hard to tell. I do not know where he would go to.

Mr. Stone: But with that piece of paper in his pocket, he is bound to stop. He has got a clearance.

Mr. Clewer: Well, he knows, Mr. Stone, that he has got that engine to move between Little Rock and Biddle, and he is a man of very good judgment and sense. We have got to give him credit for having knowledge enough to know just what his duties are. Therefore, he leaves Biddle with the full intention of taking that engine over to Little Rock and putting it in the side track, because he knows he hasn't any business to make any further move than that, with that engine. Now, I am not prepared to say whether or not he might not keep right on going. I don't know what he would do. I could not say that. It is possible—it is not at all impossible for him to make a move of that kind. An engineer frequently does things equally as bad, and we have to admit the fact that it is possible for the human mind to err.

Mr. Stone: Why could you not operate the entire division, if you had enough positive blocks, with these hostlers handling the engine?

Mr. Clewer: Well, we would not want to do that.

Mr. Stone: But you could do it, could you not?

Mr. Clewer: We, Mr. Stone, are not contending that these men, as hostlers, are locomotive engineers. Now, I do not know whether you think that the duties performed by a locomotive engineer are on an equality with those of a common hostler.

I do not look at it in that way. I think that a hostler is a man who only has to acquire the knowledge to stop and start a locomotive, with safety; keeping sufficient water in the boiler to keep from burning the locomotive. Now, an engineer has different duties, and you could not class a hostler on an equality with an engineer. For that reason, we would not want to trust them in operating our trains on the main line.

Mr. Stone: But you do make a highly responsible man of him, for this movement, for the time being, do you not?

Mr. Clewer: I do not figure it so; no, sir.

Mr. Stone: Is not the keynote of the whole situation, your answer to Mr. Sheean, that he is willing to do this work around the terminal, after he gets through hostling?

Mr. Clewer: No, sir; the work performed by these hostlers is varying, and when not handling an engine between these two points, they are performing some other duty about the terminal that might be assigned to them.

Mr. Stone: For that reason, they would be more preferable than an engineer to make this movement, because he would not want to do that class of work.

Mr. Clewer: I do not suppose the engineer would want to do that kind of work. He would, if he had the position under the present arrangement.

Mr. Stone: But you would not want to say, or you would not be willing to leave the inference with this Board, that an engineer, to operate an engine on the road, would not require more qualifications than this man who operates it on the main line, for three miles?

Mr. Clewer: I have told you he required a great many other qualifications, to operate an engine on the main line, against a hostler operating an engine on the main line, in yard limits. Now, I consider this piece of track, under its present arrangement, just as safe as any locomotive engineer would be in handling a locomotive, in a terminal point off the main line, with the switches closed.

Mr. Stone: Then, if that is true, you must consider the intelligence of the two men, operating in a terminal, the same.

Mr. Clewer: I did not say so. I contend that the engineer is altogether a different man, in qualifications for road work, as

compared with an ordinary hostler, handling engines in a terminal point.

Mr. Stone: I think that is all.

Mr. Sheean: That is all.

Mr. Nagel: I think we might as well adjourn until half past two.

(Whereupon, at 12:25 o'clock P. M., a recess was taken until 2:30 o'clock P. M.)

After Recess.

Mr. Sheean: Mr. Willsie.

A. N. WILLSIE was called as a witness, and, having been first duly sworn, testified as follows:

DIRECT EXAMINATION.

Mr. Sheean: State your name, please.

Mr. Willsie: A. N. Willsie.

Mr. Sheean: Where do you live, Mr. Willsie?

Mr. Willsie: Chicago.

Mr. Sheean: What is your business?

Mr. Willsie: I am Chairman of the Fuel Economy Committee of the C. B. & Q. Railroad.

Mr. Sheean: How long have you been in the employ of the Chicago, Burlington & Quincy Railroad?

Mr. Willsie: About 35 years.

Mr. Sheean: In what capacities?

Mr. Willsie: Well, I began employment as a message boy in the Master Mechanic's office; put in ten years of office work; then began as locomotive fireman.

Mr. Sheean: How long were you a fireman?

Mr. Willsie: Five years as a fireman, about five years; about five years as a locomotive engineer; one year as a traveling fireman; five years as traveling engineer; one and a half years as master mechanic; five years division superintendent; and in the present position about two years and eight months.

Mr. Sheean: In your present position, in a general way, what are your duties?

Mr. Willsie: My principal duties are to look after the economy of fuel on locomotives.

Mr. Sheean: In just what way?

Mr. Willsie: I ride locomotives and observe the working of the crew; and also hold meetings, inviting in engineers and firemen and conductors and brakemen and division officers; and we talk fuel economy from every viewpoint we can think of.

Mr. Sheean: In the reports of test trips that were made here, from which Mr. Tollerton made certain summaries, did you participate in the making of any of those tests on the Burlington?

Mr. Willsie: I was along on 31 trips in the months of September and October, 1913.

Mr. Sheean: And those tests and trips and the reports of them on the Burlington road are in this form from which Mr. Tollerton made his summaries?

Mr. Willsie: Yes, sir.

Mr. Sheean: Just in a general way, Mr. Willsie, I wish you would tell the manner in which those tests were made. First, tell us what territory they covered, in the most general way.

Mr. Willsie: We made eight trips between Galesburg, Illinois, and Chicago, on what we call O-1 and O-2 engines. Those are both Mikado engines.

Mr. Sheean: Weighing about how much?

Mr. Willsie: The lighter engine, 198,550 pounds on drivers, and the larger type 227,000 pounds on drivers, and the division is 155 miles, double track.

Mr. Sheean: On what other division did you make tests?

Mr. Willsie: We also made four round trips between Beardstown and Centralia, Illinois, a 136-mile division.

Mr. Sheean: And what were the type of engines used there?

Mr. Willsie: Those were Mikados, 227,000 pounds on drivers.

Mr. Sheean: And where were some of the other tests made?

Mr. Willsie: We also made four trips west bound from McCook to Akron, and three trips east bound, with the Mikado engines, 198,550 pounds on drivers.

Mr. Sheean: McCook, Nebraska?

Mr. Willsie: McCook, Nebraska, to Akron, Nebraska. We

also made four trips, from Edgemont, South Dakota, to Gillette, Wyoming, a 123 mile division, or 121 miles.

Mr. Sheean: What was the type of power on which those tests were made?

Mr. Willsie: They were Mikados, 227,000 pounds on drivers.

Mr. Sheean: In the manner of ascertaining the amount of fuel consumed, as to the amount of fuel consumed on the entire trip, how did you arrive at that?

Mr. Willsie: We estimated the coal; and before starting on the trip I had with me a man who handled—the tester of engines in the laboratory department, in order to test the tank coal. He was with me on all these tests. He and I, together with the engineer and fireman, would determine how much coal we had on the tank before starting, and when we stopped at intermediate stations to take coal, the four of us would estimate how much was left in the tank and how much we took, and the same at the end of the trip.

Mr. Sheean: So that, having the complete spread of the run, the amount at the starting point and the amount at the end was the joint judgment of the engineer, the fireman, yourself and the other men on the run?

Mr. Willsie: Yes, sir.

Mr. Sheean: How did you ascertain the part of the run in which the heaviest firing would take place?

Mr. Willsie: Before starting on the trip, I would ask the engineer and firemen where, in their judgment, they thought the hardest hour's work would occur; and on their recommendation we would count the scoops of coal during that hour's period, through the territory where they thought the hardest work would be done.

Mr. Sheean: And in counting these scoops of coal, just describe how you arrived at the time that was devoted to the shoveling, the actual physical shoveling of the coal in that hour?

Mr. Willsie: Mr. Woody, the test car foreman, had a stop watch and he would time the actual seconds or minutes as the case might be, that the fireman was actually putting in coal. We also kept time the same way on duties, such as shaking grates and cleaning deck, or cracking coal, or pulling down coal, or shoveling down coal, as the case might be. The same way in

cleaning the ash pans, or any work that took him out of the cab. The time was allowed from the time he started out of the cab until he finished the work, and was back in the cab, and it was all specified on the report, showing the time consumed in shaking grates by itself, the time consumed in cleaning decks by itself, the time shoveling down coal, or pulling down coal by itself, the same as firing.

Mr. Sheean: While this time was thus being put down, what did you do with reference to the counting of the scoops?

Mr. Willsie: During the hardest hour's period, I counted the scoops of coal, and in a few other cases I counted other hours, so as to determine in my own mind if they figured out the hardest point on the road. In a few cases, I found that the hour that I picked out, the piece of road on that would require the hardest work, and showed that they burned more coal; and I showed that on my report.

Mr. Sheean: Just illustrate that, if you please. Take some concrete case.

Mr. Willsie: For instance, out of Galesburg, I asked the crew where they thought their hardest work would be. They thought the first hour out of Galesburg.

Mr. Sheean: From Galesburg to where?

Mr. Willsie: About Galva, twenty-three miles. I assumed the hardest work would be after we left Wyanet; from Wyanet on. I had two or three cases where I counted the hour out of Galesburg and also the hour out of Wyanet. Whichever showed the heavier firing, I showed that on my report.

Mr. Sheean: That is, whichever, the first hour, the one selected by the crew as being the one where they thought they would encounter the heaviest work in a particular hour, if that was the heavier you would take it, or rather you would count the number of scoops of coal shoveled during that hour, and then, at some later hour, where you thought it might be heavier, you would also take that hour, and then put the actual heaviest hour on the trip in the report, and those are shown in the reports?

Mr. Willsie: Yes, sir. I have one illustration here, the test trip No. 5, September 5. The first hour out of Galesburg the fireman shoveled 238 scoops of coal, and I allowed him 18 pounds per scoop, which I think is a little high, but I gave the

fireman the benefit of the doubt. That amounted to 4,284 pounds of coal. The time doing this was from 11:54 A. M. until 12:54 noon, P. M. I again counted, after leaving Wyanet, the hours from 2:51 P. M. to 3:51. During that period he shoveled 296 scoops of coal, or 5,328 pounds, which is about a thousand pounds more—just a thousand pounds more—than the hour period that the fireman and engineer selected; so that I gave them the benefit of that second hour.

Mr. Sheean: That is, where, in these reports, it called for the showing of the heaviest hour of the firing, whichever one showed the heaviest hour, or the greatest amount of coal shoveled in any continuous hour, that was shown on the report?

Mr. Willsie: Yes, sir.

Mr. Sheean: As to the total amount consumed on the run, from one end to the other, that was the result of the estimate agreed upon by you and the engineer, fireman and this test car foreman, for the total amount of the run?

Mr. Willsie: Yes.

The Chairman: In the first instance, how much time was consumed during the hour, shoveling coal?

Mr. Willsie: I cannot tell you just how much time in that hour, because we didn't keep them jointly.

The Chairman: Did not keep the time he was occupied?

Mr. Willsie: Yes; kept the continuous time in seconds.

The Chairman: But you did not take an account of the exact time that was occupied in shoveling in a particular amount of coal?

Mr. Willsie: No.

Mr. Sheean: In the hour of heaviest shoveling, of greatest consumption, would you have separately for that one hour, the number of seconds in that hour in which the shoveling was done?

Mr. Willsie: No, we did not separate that. That was what Judge Pritchard was after.

Mr. Sheean: Yes. I just wanted to get that perfectly clear that the total seconds for the entire run, was taken from the beginning to the end of the run?

Mr. Willsie: Yes.

Mr. Sheean: Then the hour in which the heaviest work was

done, was taken as an hour, and taking the total amount of coal in that hour as showing the heaviest hour in that trip?

Mr. Willsie: Yes.

The Chairman: During that time, how much of his time was unoccupied?

Mr. Willsie: Unoccupied, in the way of performing no duties?

The Chairman: Yes.

Mr. Willsie: I do not think at any time he shoveled coal more than—oh, 35 per cent of the time, anyway.

The Chairman: Was he engaged during that time, performing any other kind of duties?

Mr. Willsie: We gave him actual time for all the work, with the exception of putting on the injector or shutting it off, or putting on the blower or shutting it off, and we allowed him a flat rate—we allowed him eight seconds every time he applied the injector, and eight seconds every time he closed the injector; four seconds every time he opened the blower, and four seconds every time he closed the blower.

The Chairman: You estimated the time for doing these things?

Mr. Willsie: Yes, sir.

Mr. Sheean: Just tell us what those three operations are.

Mr. Willsie: The injector is a machine that puts the water in the boiler. What we have on our road is non-lifting injectors. The fireman opens the overflow and then opens the steam valve, and the injector goes to work. In closing the injector, it would be the reverse move, close his steam valve, and then close the overflow, so as not to waste the water. The blower is simply a round globe valve, right in front of him, simply two or three twists to open.

Mr. Sheean: Are those the two things? I think you spoke of a third.

Mr. Willsie: No, putting on the injector, or shutting it off, and putting on the blower or shutting it off.

The Chairman: Were there any other duties he performed at that time?

Mr. Willsie: Yes; at times he would clean up the deck a little. He might use his squirt hose to wet down his coal. He might crack a few chunks of coal, not very many, because we

crack the coal. He might have used the booster to throw the coal ahead. That is run by steam power, but whatever he did, we gave him credit for as to the actual number of minutes in doing that work.

Mr. Sheean: That was everything, shaking down the coal, using the booster or anything else, save and except handling the blower and handling the injector, you counted the actual seconds?

Mr. Willsie: Yes, sir.

Mr. Sheean: As to the turning of the injector on or off, or turning the blower on or off, the seconds were allowed, without the effort to get the exact number of seconds used in the operation?

Mr. Willsie: Yes.

Mr. Sheean: But as to everything else on the trips, you took the actual time?

Mr. Willsie: Yes.

Mr. Sheean: That one you spoke of a moment ago there, when this question was first asked—the heaviest, what did you say, 5,000 pounds?

Mr. Willsie: No; it was the last one, was 5,284, as I remember it.

The Chairman: I asked you in regard to the first one.

Mr. Willsie: The first one on the same trip?

The Chairman: Yes, sir. I understood you to say 4,000.

Mr. Willsie: Yes, it was the first one.

Mr. Sheean: But in making the report of the heaviest hour on that trip, you show in the report on which Mr. Tollerton's tabulation was made, the five thousand and how many?

Mr. Willsie: 5,328.

Mr. Sheean: 5,328 pounds?

Mr. Willsie: Yes, sir.

Mr. Sheean: In that hour?

Mr. Willsie: Yes, sir.

Mr. Sheean: That is arrived at on a computation of 18 pounds to the—

Mr. Willsie: Scoop.

Mr. Sheean: To the scoop.

Mr. Willsie: Yes, sir.

Mr. Sheean: So that just how the scoops were divided up

in that hour, you have no specific record of so many seconds and so much of a pause?

Mr. Willsie: No, I have not.

Mr. Byram: Was it your object in classifying this service to arrange it so that the actual shoveling of coal would be in one computation, the other work, aside from shoveling coal, in another classification, and then the time of performing no service whatever, separated still further from that?

Mr. Willsie: The time of performing no physical labor was taken from the difference of the time on the trip and the time he was actually doing work.

Mr. Byram: But the idea was to classify the time he was not performing manual labor, and the classifying of manual labor, not shoveling coal, and then shoveling coal by itself?

Mr. Willsie: Yes; the test car foreman had a list drawn up each morning, headed "Shoveling coal;" another heading, "Cleaning deck;" another heading, "Shaking grates;" another heading, "Pulling down or shoveling coal;" another heading, "Cracking coal;" another one, "Miscellaneous duties."

The Chairman: If I understand you correctly, you say only 35 per cent of the hour was consumed, in the first test you made?

Mr. Willsie: I would say not over 35 per cent, even in the hardest hour of firing, was he actually shoveling coal.

Mr. Burgess: Was that 5,328?

Mr. Willsie: 5,328 pounds; 296 scoops, 18 pounds each.

Mr. Burgess: Then what was the other one?

Mr. Willsie: 4,284; that is 238 scoops.

Mr. Burgess: He shoveled those 5,328 in an hour, did you say?

Mr. Willsie: Yes, sir.

Mr. Sheean: That was the heaviest hour of firing on that trip?

Mr. Willsie: Yes, sir; the reason I took the second was that before starting I asked the crew where they thought the heaviest hour's firing would be, and they said out of Galesburg, and I thought it would be heavier out of Wyanet, so I took both of them and gave them the credit of the heaviest hour.

Mr. Sheean: What was the total length of that trip?

Mr. Willsie: The miles? 155 miles. I can give you the time on the road.

Mr. Sheean: Just give us the time on the road. What kind of a train was this? Give all of that detail.

Mr. Willsie: These were all dead freight trains.

Mr. Sheean: Give us the tonnage, the kind of engine, and all, and keep your voice up, Mr. Willsie, too.

Mr. Willsie: All right.

Mr. Stone: Did he say 25 per cent or 35?

Mr. Sheean: 35 per cent.

Mr. Stone: 35 per cent of the time?

Mr. Sheean: Yes.

Mr. Willsie: This was made on September 5, 1914; we left Galesburg at 11:45 A. M.; arrived at Chicago at 9:05 P. M. There were 78 cars in the train, an average of 3,198 tons.

Mr. Park: How many loads are empties?

Mr. Willsie: I think I have it here—

Mr. Park: Well, it is immaterial.

Mr. Willsie: I think I have the report here. The engine number was 5053, and the weight on drivers 198,550 pounds.

Mr. Sheean: Did you say the tonnage was 3,198 tons?

Mr. Willsie: 3,198; yes, sir.

Mr. Sheean: And 78 cars?

Mr. Willsie: Yes, sir.

Mr. Sheean: And the leaving time, 11:45 A. M., and the arrival time, 9:05 P. M.?

Mr. Willsie: Yes, sir.

Mr. Sheean: 155 miles?

Mr. Willsie: Yes, sir. Now, the total time on duty—that is, including from thirty minutes before he was called at Galesburg, until he left the engine on the clinker pit at Western Avenue, Chicago—was an even twelve hours. The time supplying coal to the fire box was 2 hours and 46 minutes; the total time in which he was doing manual labor was 3 hours 28 minutes and 37 seconds; the time that he was doing other manual labor, such as taking water or doing little jobs that he could help the engineer out, amounted to 34 minutes and 38 seconds. The percentage of time putting in coal on that trip was 23.1. The total time in manual labor, 29 per cent.

Mr. Sheean: Mr. Willsie, was the plan which you have

described followed on all of these—did you say thirty-one—trips which you made?

Mr. Willsie: Thirty-one trips; yes, sir.

Mr. Sheean: And the same plan was followed throughout all of them?

Mr. Willsie: The same plan was followed out in the lignite territory, over in Nebraska, we only allowed them 14 pounds to the scoop, instead of 18.

Mr. Sheean: Tell us about lignite?

Mr. Willsie: In Nebraska, nearly 50 per cent of our engines are burning lignite coal. That is a coal which is much lighter in quality than the bituminous coal we burn in Illinois, Missouri and other parts of the system, and the coal does not weigh as much. We took twenty scoops and weighed them and averaged them up at a little less than fourteen pounds, and we allowed them fourteen pounds. Otherwise, the trips were the same.

Mr. Sheean: You were personally present on each of these runs which are described or set out in these supporting papers, but which have been filed here, from which Mr. Tollerton made his deductions.

Mr. Willsie: Yes, sir; I was along continuously, on every trip, from one end to the other.

Mr. Sheean: And these detailed facts as to each of the runs, the time on duty and the weight of the engine and the number of the engines, and all these other things you have given, are set out in these supporting data.

Mr. Willsie: Yes, sir.

Mr. Sheean: And a description as given here as to the one, except the use of fourteen pounds in the lignite territory, and eighteen pounds in this other territory—

Mr. Willsie: The bituminous burning territory.

Mr. Sheean: The bituminous burning territory.

Mr. Willsie: Yes.

Mr. Sheean: There is no difference in the method or manner of doing this work at the different places?

Mr. Willsie: No, sir; with the exception that lignite coal does not clinker like other coal, and you do not have to shake the grates so much with lignite coal.

Mr. Sheean: Whatever there was in the shaking of grates on any of the trips was kept under the actual time?

Mr. Willsie: Yes, sir, just the same on one trip as on another.

Mr. Sheean: And in your reports as to the operations, you used fourteen pounds as being the weight of a scoopful of lignite, and 18 pounds in the other part of the territory?

Mr. Willsie: Yes, sir.

Mr. Sheean: At Galesburg, the time on these runs begins thirty minutes before the train is due to leave?

Mr. Willsie: Yes, sir.

Mr. Sheean: And in the twelve hours that you showed there, you included whatever his time was on the different runs. On that, it would be thirty minutes before leaving time?

Mr. Willsie: Yes.

Mr. Sheean: On the other runs, if there were runs where there was no beginning of time prior to the departure of the train, you showed whatever his compensated time was in each case?

Mr. Willsie: Yes. The object of explaining that was that you might figure up from 11:45 A. M. to 9:05 P. M., and then later on, where I stated he was on duty twelve hours, it would not figure out. This 11:45 A. M. to 9:05 P. M. is the time between terminals, the time he left Galesburg until he arrived at the Chicago terminal, in the freight yards at Clyde, where we give him credit for 135 miles. The rest of the time is the beginning of the trip and taking the engine to the roundhouse from Clyde.

Mr. Sheean: In other words, the making of that report is in keeping with the form which has been already filed and explained by Mr. Tollerton?

Mr. Willsie: Yes, sir.

Mr. Sheean: As to the computation of time?

Mr. Willsie: Yes, sir.

Mr. Sheean: On all of the thirty-one trips, the same method and manner was used by you in the observations?

Mr. Willsie: Yes, sir.

Mr. Sheean: Have you, Mr. Willsie, outside of these special test trips, had experience in the observation of the method and manner in which the coal is supplied to the fire box?

Mr. Willsie: Yes, sir, a great deal of it.

Mr. Sheean: About how much of your time is put in, in work of that sort?

Mr. Willsie: Well, I put in one year as a traveling fireman, exclusively in that kind of work, and the five years and over that I was a traveling engineer, I rode engines continually every day, observing the handling of the engine and the firing of the engine.

Mr. Sheean: Do the results from these test trips, here made on this class of power, confirm your previous observation and experience in that line, as to the proportion of the time on the road that the fireman is engaged in the physical labor on this heavy power?

Mr. Willsie: Yes, sir; you might say a little more than that; for these test trips were made on dead freight trains, hard trips on big freight trains. A great many trips with the same class of engine are made with lighter tonnage, such as stock trains, meat and merchandise, where the fireman does not shovel so much coal.

Mr. Sheean: But on all of these test trains they were made under hard operating conditions and heavy tonnage?

Mr. Willsie: Yes, sir.

Mr. Sheean: And did you select, for the making of those tests, any train that had any special privilege of any sort over any of the other trains?

Mr. Willsie: No; we told them to give us as nearly as they could the engine rating, as nearly as they possibly could; to take the engines that were marked up, that were running in the pool. We had different engines almost every trip and different crews every trip, and the yardmaster filled up the tonnage as nearly as he could get to it; and our average tonnage pulled on the test trip is more than the average tonnage pulled in the thirty day period before the trips, on the same class engines.

Mr. Sheean: So that what is shown by these various tests is confirmatory, in a general way, of previous observation and experience?

Mr. Willsie: Yes, sir.

Mr. Sheean: Have you, Mr. Willsie, had any experience with the mechanical stokers?

Mr. Willsie: Yes, sir.

Mr. Sheean: Are they in use on any of the heavier power on the Burlington?

Mr. Willsie: We have 63 engines equipped with what is known as the Street overfeed mechanical stoker.

Mr. Sheean: What is the type of engines on which you have that mechanical stoker?

Mr. Willsie: We have 36 Mikado engines, 227,000 pounds on drivers, and we have 27 what is known as the 2-10-2 type, a larger engine than the Mikado, with a tractive power of 71,500 pounds, and the weight on drivers, I think, is 301,000 pounds. I will tell you in a minute. It is 300,700 pounds weight on drivers. All of the 2-10-2 type are in service on the Beardstown division, where the traffic is heavy.

Mr. Sheean: What is the nature of the traffic on this Beardstown division?

Mr. Willsie: It is in the coal mining territory, and the empties are going south when the loads are going north.

Mr. Sheean: Most of the loaded cars are north bound from there?

Mr. Willsie: Yes; that is where the tonnage is.

Mr. Sheean: These observations to which you have been previously testifying here, are tests on hand-fired coal burning engines?

Mr. Willsie: Exclusively, yes, sir.

Mr. Sheean: I wish you would tell us something about the method and manner of the operation of the mechanical stoker—I believe you object to its being called the automatic stoker, as I spoke of it in talking with you?

Mr. Willsie: Yes; I do not like the name automatic. They are not intended to be automatic. The trouble is some of the firemen consider them too much that way.

Mr. Sheean: Describe the mechanical stoker, the Street mechanical stoker?

Mr. Willsie: I brought with me a little description of it. I thought it might be convenient for you to have, showing just about the way it looks on the engine.

Mr. Sheean: Suppose you give us the description, and I will pass this around to the members of the Board, so they may look at it at the same time that you are describing it.

Mr. Willsie: I have two of them. Here they are. Maybe some of the members of the Board are familiar with them, but if any of them are not, that will give a general idea of it.

In the first place, the coal used on these engines is what we call screenings. The coal passes through a screen that is 2½ inches in diameter. Anything over the size of 2½ inches in diameter will not go through the screen and is not used on these engines.

In the bottom of the tank is a trough, covered by a screen that has openings 2½ inches square; and this screen is kept in motion all the while by the little engine that runs the stoker. The object of that is to work the coal down into the trough, and, also, the screen will protect the trough from being filled up with chunks of iron or rock, or coal that is too large for proper firing.

The coal is then worked by a wormer through this trough to the hopper underneath the deck of the engine below the fire door.

Mr. Sheean: By a wormer?

Mr. Willsie: By a screw worm.

Mr. Sheean: By a screw worm which brings the coal nearer, does it?

Mr. Willsie: From the tank to the—

Mr. Sheean: From the tank to the fire box door.

Mr. Willsie: Underneath the fire box door and underneath the deck of the engine.

At that point there are some chain buckets that are operated by this little engine on the boilerhead. The coal is elevated to near the top of the boiler and dropped into three distributing pipes. The pipe that leads to the center feed throws the coal next to the door.

Mr. Sheean: As to those center feeds. Do those pipes you speak of go into the firebox?

Mr. Willsie: Not at that point. They do later.

Mr. Sheean: Not at that point?

Mr. Willsie: The coal is dropped into the three pipes, and the center one has a hole in the boiler, the fire box, just over the fire door, so that it feeds coal to the rear end of the fire box next to the door, and part of it is brought up toward the center of the fire box.

Mr. Sheean: The other two pipes?

Mr. Willsie: The other two pipes, one leads to either side of the door, where they go into the fire box. There the steam

jet, controlled by the little engine on the boiler that throws the coal into the fire box, so that there are only three distributing pipes, one for the center near the fire door, and one for either side of the fire box. The amount of coal fed into the firebox is controlled by this same little engine. It has seven different speeds. We can also throw it to the right or to the left by a movement of a little lever, which controls a little vane about eight inches long by three inches wide, simply throws it to the right or the left as it goes into these distributing pipes.

The coal that goes down next to the fire door goes through a sleeve, which is a screen. There are five different size holes in this screen, so that you can have all the coal that will go through a hole about a quarter or three-eighths in diameter, and the largest holes are about an inch and a quarter to an inch and a half by about five-eighths wide; so that, at any time, if you are not getting quite enough coal at the door, you can change the sleeve screen in the delivery pipes.

Mr. Sheean: Suppose you want to feed more to one side of your fire than to the other, more than in the center; what is done to bring about that result?

Mr. Willsie: There is a little lever that controls this vane in the distributing pipes. If you move it half an inch or an inch, it simply throws the coal to one side or the other in the distributing pipe.

Mr. Sheean: Does the same valve or cut-off operate on those three distributing pipes?

Mr. Willsie: Just on the right or left side alone.

Mr. Sheean: The center pipe, then, is—

Mr. Willsie: Controlled by these little screens in the pipe that I spoke of.

Mr. Sheean: By having the lever you can shut off the supply to the right or left pipe?

Mr. Willsie: The biggest part of it, yes, sir.

Then, the stoker is started or stopped by throwing the clutch out or throwing it in, as the case may be. Just one movement of the lever starts the stoker working, and just the reverse movement will stop it.

Mr. Sheean: Tell us, on one of those engines, just what a fireman does in keeping up his fire?

Mr. Willsie: The instructions are, in starting up, to build the fire up by hand.

Mr. Sheean: To build it up by hand?

Mr. Willsie: Yes.

Mr. Sheean: Explain just what you mean by building up the fire?

Mr. Willsie: In the first place, this mechanical stoker does not in any way interfere with the fire door. The fire box door can be opened just the same as on any engine without the stoker.

Building up the fire is to get your fire the proper thickness before you start out on a trip. After that you put the stoker in operation, and that does most of the work after that.

Mr. Sheean: Just to illustrate: Where the engine is delivered by the hostler, the fire is started, and there is a thin bed of fire there, ordinarily?

Mr. Willsie: Sometimes it does not cover the entire grate surface, and the fireman spreads the fire.

Mr. Sheean: Before getting out on the road, the instructions are to build up this fire, that is, to get a heavier bed of fire?

Mr. Willsie: Yes.

Mr. Sheean: Before you start upon the road trip?

Mr. Willsie: Yes, sir.

Mr. Sheean: And that, according to instructions, is done by hand?

Mr. Willsie: Yes.

Mr. Sheean: About how many fires ordinarily are put in in building up a fire?

Mr. Willsie: A good many of the boys use the stoker in preference to putting it in by hand; but the instructions are to put it in by hand. I should say that a man ordinarily, on one of those large engines, would put in 50 to 75 scoops of coal.

Mr. Sheean: Doing that at odd times?

Mr. Willsie: Yes.

Mr. Sheean: Not a single fire?

Mr. Willsie: No.

Mr. Sheean: In putting in a single fire, how many scoops does he ordinarily put in?

Mr. Willsie: Ordinarily about 10, in building it up.

Mr. Sheean: That would be 10 over on one side of the fire box?

Mr. Willsie: No; he will put it wherever it is necessary to get the fire box level.

Mr. Sheean: When that fire is built up, and you are coupled up, now, to go out on the run, tell us then what the fireman does, when the mechanical stoker starts?

Mr. Willsie: The stoker is all ready for operation. The little engine is started, and the clutch thrown in. He moves the clutch lever toward him, and that starts the stoker to working. Then he manipulates the stoker according to the amount of coal that he needs to keep the engine hot. If he wants more coal, he increases the speed; there are seven speed notches.

Mr. Sheean: Are each of those speeds maintained by dropping this lever in a particular notch?

Mr. Willsie: No; a separate lever.

Mr. Sheean: The lever is set in a notch?

Mr. Willsie: Yes, sir.

Mr. Sheean: So that it will remain at that same speed, when it is set there, until the lever is again moved?

Mr. Willsie: Yes.

Mr. Sheean: There is a movement forward or back, to make any one of the seven speeds?

Mr. Willsie: Yes.

Mr. Sheean: Then, when the machine has started and is working, what is the operation?

Mr. Willsie: The fireman watches his fire closely; a good man does. He wants to know whether his fire is burning bright, and also whether his fire is burning evenly; so every few minutes he gets down and looks into the fire box to see if the fire satisfies him. If it does not satisfy him, he will change it to the right or to the left, or, in case he is getting too much coal, he changes the speed of the engine, throwing in less coal. In case he should find a hole in the fire, which sometimes occurs, on account of the fire being so light with the stoker engines, we prefer that he open the door and put in two or three scoops of coal to cover up that hole.

Mr. Sheean: Tell us what you mean by finding a hole in the fire.

Mr. Willsie: A hole in the fire is simply the same as a

hole anywhere else; that is, where the fire has got so thin that the air will make holes through the fire and gets too much cold air in the fire box for good combustion. That hole can be covered up with the stoker machine, by increasing the speed or changing the vane, throwing it to the right or to the left; but in doing so he is throwing coal over the majority of the fire box that does not need any more coal. So we instruct the fireman, whenever he detects a hole in the fire, to open the fire door and put in two or three scoops of coal, where it is necessary to cover that hole. He does that without changing the stoker operation at all.

Mr. Sheean: Is there anything at all about this mechanical arrangement, as it exists now, that interferes with the hand firing, in case anything at all happens to the mechanical stoker?

Mr. Willsie: Nothing whatever. If anything happens to occur, he throws it off and fires by hand, just the same as in the case of any locomotive. The only thing that would be against him would be the quality of the coal. It would be pretty hard to keep his engine hot with the screenings, if she had her full tonnage and had any distance to go. Should that happen at any time, and he is near a chute with lump coal, which all chutes have, both lump and slack, he can take on lump coal, but breakdowns are so seldom that we experience very little if any trouble with them.

Mr. Sheean: How long have these stokers, the Street stokers, been in use on these engines on the Burlington?

Mr. Willsie: We have had three of them in service about a year and a half, and along last summer we began to put them in general service on the division. We have probably had the last fifty of them in service six months.

Mr. Sheean: That is on the heaviest type of power that you have there, is it, that those have been put on?

Mr. Willsie: Yes, sir, it is on this heaviest power and the next to the heaviest.

Mr. Sheean: Has your experience with them been satisfactory?

Mr. Willsie: Very much so.

Mr. Sheean: Has it been satisfactory to the men handling the mechanical stoker on your railroad?

Mr. Willsie: They speak very highly of them. In fact,

the boys on the Beardstown division are firing stoker fired freight engines in preference to hand fired passenger engines.

Mr. Sheean: There has been some suggestion made here about there being a good deal of noise and rattling in connection with that work. How does that compare, for instance, with the noise in a telegraph office where there are a lot of operators?

Mr. Willsie: They do make some noise, but the crew soon get accustomed to that. The noise on a stoker engine would not bother me as much as the noise in a lively relay telegraph office.

Mr. Sheean: Just what is that noise?

Mr. Willsie: The noise is caused by the little endless chain buckets working through the pipes, a part of it; the biggest part of it is the steam jets exhausting, throwing the coal into the fire box.

I might say, before it is brought up, that it has been claimed that the feeds are continually blocking up, and bother the firemen. Well, that is a fact, that they do give some trouble, but it does not take one per cent of the man's time to do that. If the coal gets wet in spots, and it does not have time to soak down through the coal, sometimes these feeds will choke up; but the fireman can release them generally in from ten seconds to maybe half a minute.

Mr. Sheean: Well, tell us just what you mean, what the physical act is, of releasing it.

Mr. Willsie: The physical act is that he has a little bar about thirty inches long, just a piece of iron, about three-quarters of an inch in diameter; and as this coal gets plugged up into that hole that feeds the fire box, he simply takes a poker and jams through there. It is a very simple matter, and causes but very little trouble.

Mr. Sheean: What about the dust or dirt, in working around a mechanically fired engine?

Mr. Willsie: There is naturally more dust in slack coal than in lump, but if the fireman is careful and keeps his deck clean, by wetting the coal and sweeping the deck down, he will not have more trouble with dirt in the cab than with an ordinary fire.

Mr. Sheean: Is there any rule prohibiting the wetting down of coal on these mechanical stokers?

Mr. Willsie: No, sir, there is not. Lots of the firemen wet it down right along; some firemen do not.

Mr. Sheean: There are no instructions on the Burlington with reference to whether they shall or shall not wet it down.

Mr. Willsie: No.

Mr. Sheean: But it is left to the judgment of the individual fireman?

Mr. Willsie: The stoker man who starts out with the boys tells them to wet it down, just as a matter of comfort.

Mr. Sheean: What do you mean by the stoker man?

Mr. Willsie: When these stokers came to us and were being applied, the stoker company sent along a representative to see that they were applied properly, and started properly, and he made trips with the boys, and is still making trips with the boys to instruct them in the proper use of the stoker.

Mr. Sheean: And those instructions are continued, are they?

Mr. Willsie: Yes, sir.

Mr. Sheean: As other stokers come in?

Mr. Willsie: Yes, sir.

Mr. Sheean: On the Burlington Railroad, have you at any time had supervision over the work of hostlers or hostler helpers?

Mr. Willsie: Yes, sir.

Mr. Sheean: State, in a general way, how, at different points on the Burlington, the work is done in connection with the care and handling of an engine, between the time that it comes in on one trip and goes out on another.

Mr. Willsie: That varies a great deal, according to the location. At the busy terminals, large terminals, we have hostlers who don't do much of anything except handle the engine under steam, and sometimes, at certain points, they help clean the fire, and they take charge of the engine, as a rule, on the incoming track, which, sometimes, is next to the clinker pit and sometimes next to the coal chutes. They handle the engine while the coal chute man puts on coal, takes water, puts the engine on the pit, where the fire knockers knock the fire. These are the points where a man simply handles the engine. He again takes the engine, gets her over into the roundhouse or on some herding track. The outgoing movement is just the reverse—take the

engine out of the roundhouse, over the table and place her on the outgoing track. He also does any switching necessary around the roundhouse, switching cars or engines, and at some points, as I say, he puts on sand—helps put on sand; helps take water.

Mr. Sheean: Tell us about that switching around a roundhouse.

Mr. Willsie: There are times when a car of sand will have to be spotted somewhere, to unload, or a dead engine may have to be shifted from one track to another.

Mr. Sheean: Roundhouse supplies, at times.

Mr. Willsie: Roundhouse supplies, which are—say we get some wheels that we want to put under an engine or on a car. We place that car in where it will be convenient for the roundhouse man to unload the wheels.

Mr. Sheean: I notice in this form 42, which was filed here yesterday or the day before, that at some of these larger terminals, for instance, at Chicago, you have various payroll designations for men who do different kinds of work around and about the larger terminals—hostler, assistant hostler, ash pit men, fuel men, foremen, fire cleaners, assistant hostlers, fuel men —various payroll designations. Is the work divided up at these busier terminals, so as to have certain men assigned to certain duties, and others to certain other duties?

Mr. Willsie: I understand at Western Avenue, Chicago, there are some hostlers that do not do anything but handle the engine under steam.

Mr. Sheean: Well, you seem to have 11—or seem to have some men there, at least, who do nothing except that; other men who, for half an hour a day, will handle the engines on or off the pit, the rest of the time being engaged in other work.

Mr. Willsie: There are hardly any of the fire knockers but what move the engine on the clinker pit. He will start to knock his fire and moves her onto the pit. That is what is probably covered in there, half an hour to put the engine on. He will move her maybe an engine length, or two engine lengths to put a fresh engine on.

Mr. Sheean: I notice one actually cleaning and knocking fires nine and a half hours; handling engines on and off cinder pits, half hour. Is it the practice, at some of the busier yards,

to have the men who are engaged in cleaning and knocking fires on the cinder pit, move the engine on or off the pit?

Mr. Willsie: Yes, sir; that is customary in a good many terminals.

Mr. Sheean: Moving it a few feet?

Mr. Willsie: Yes, sir.

Mr. Sheean: Well, Galesburg is another busy terminal, is it not, on the Chicago, Burlington & Quincy?

Mr. Willsie: Yes, sir.

Mr. Sheean: And there you have engine inspectors, so-called, foremen, others who at times may move an engine.

Mr. Willsie: I noticed that report. I think Mr. Kooser moved an engine there. Mr. Kooser was formerly a locomotive engineer, but he was taken out of road service. I think his health failed him and he is in the roundhouse as an engine inspector. Another man there by the name of Mackay, he handles engines around the yard; also takes engines to the depot, when necessary, and when not engaged in doing that work, is also assistant to the roundhouse foreman.

Mr. Sheean: Are the hostlers on the Burlington covered by your schedule with the engineers, or schedule with the firemen?

Mr. Willsie: No, sir.

Mr. Sheean: Are they recruited exclusively, either from the ranks of the engineers or firemen?

Mr. Willsie: Most of our hostlers are made from roundhouse men—roundhouse forces, such as clinker pit men.

Mr. Sheean: You spoke of a couple of these men who were disqualified from longer serving as engineers on the road, who occupied positions as hostlers, and some of them roundhouse foremen or assistant foremen?

Mr. Willsie: Yes, sir; we have cases of that kind.

Mr. Sheean: Passing from these larger, busier terminals, getting us down to some of the smaller ones, is there a still wider spread in the variety of duties that men perform?

Mr. Willsie: Yes, there are some points where the man in charge of a little roundhouse, he might be called a hostler, a foreman or something else, but he has entire charge of the engine, from the time it gets in until it goes out. He will not only knock the fires and clean the ash pans, he will do any minor work

on the engine, such as if the grates need repairing. He will fire the engine up, take coal, if it happens to be necessary at that point; take water, sand, and put on supplies if necessary. On a Sunday lay-over probably wash out the boiler. In fact, he takes general charge of the engine. These are isolated points. We have, in some cases, points where the engine does not get back into the terminal for a week or two at a time.

Mr. Sheean: I notice at Prairie du Chien, a man named Charles Greenmore, on a rate of 17 cents an hour. He seems to put in a quarter of an hour a day, handling in and out of roundhouse; another quarter of an hour on the cinder pit, and one hour actually cleaning and knocking fires, and one hour firing up the engine, and the rest of the time the engine is there, acting as engine watchman.

Mr. Willsie: Prairie du Chien is an intermediate station. It has a little engine house. I think there are two stalls and some of the way freights turn there, and have at times had construction engines laying up there, and have had occasions where engines would tie up there, and he does all the duties there that are necessary to put that engine in shape to go out again.

Mr. Sheean: Well, now, have you, under this proposal here, even though this man makes no main line movement—if you have this man in charge of an engine for ten or twelve hours a day, and it is moved ten to fifteen minutes out of that ten or twelve hours, under the proposal here, even though he makes no main line movement, I understand he takes a rate of $3.35 a day. What would that be a month to each of these watchmen?

Mr. Willsie: If that wage were established, the minimum earnings for a thirty-day month would be $100.50. That would be the minimum.

Mr. Sheean: Have you any points on the Burlington where there are engine watchmen, employed on a monthly salary, and who, as a part of their day's work, do move one engine or two engines, or handle it under steam at some time?

Mr. Willsie: Yes, sir; we have quite a few. I can call to mind one on the Omaha division, a place called Schuyler. That man not only takes care of the engine, but he washes the engine out on Sundays, takes care of the clinker pit, puts on the fire, fires the engine up, gets her ready for the crew. He also takes a passenger engine out of the roundhouse in the morning

to the depot, probably a quarter of a mile. He does that to save himself a walk towards home; also save the engineer and fireman a little walk. It is on the stub end of the Schuyler branch.

Mr. Sheean: I notice, in glancing over another sheet here, are you familiar with Winnfield? Here seems to be a man named D. L. Hess, a locomotive watchman, who is being paid $55 a month, and for half an hour each day he handles an engine in and out of the roundhouse, and the rest of the day is put in in duties of watching the engine.

Mr. Willsie: At Winnfield? I do not remember that.

Mr. Sheean: That is on the Burlington Division?

Mr. Willsie: It is over in Iowa, a little narrow gauge road that we bought up. I cannot tell you, I have not been over at Winnfield.

Mr. Sheean: A narrow gauge?

Mr. Willsie: It was at one time, I think.

Mr. Sheean: He may be a main line hostler, then.

Mr. Willsie: He may be, as far as I know. I don't know where Winnfield is, exactly, it is one of the branch runs. I do know another place, Rushville, Illinois.

Mr. Sheean: Tell us what the work is at Rushville, and how it is done.

Mr. Willsie: There is a passenger engine that gets in there about eight or nine o'clock in the evening and leaves at about five or six o'clock in the morning. This man, in addition to taking care of the engine, such as cleaning the fire and doing that line of work that is necessary, I believe, sweeps out the coaches and takes general charge of the engine and does all the work necessary until such time as she goes out again. In addition to this passenger engine, there is one way freight engine that lays up there at night.

Mr. Sheean: You have one freight and one passenger engine that habitually lay up at this point?

Mr. Willsie: At nights, yes, sir.

Mr. Sheean: And you have the one man who, in connection with his watching and caring for those engines, does move both of those engines under steam?

Mr. Willsie: Yes, sir.

Mr. Sheean: Do you know whether he makes a movement on the main line or where he might foul the main line?

Mr. Willsie: I don't believe he would have to do that at Rushville, but at Schuyler he does.

Mr. Sheean: At Schuyler he does?

Mr. Willsie: He takes them up the main line to the depot; but that is the stub end of the division, or branch.

Mr. Sheean: There are a great many places on the Burlington where engine watchmen are on a monthly salary?

Mr. Willsie: Quite a few of them, yes, sir.

Mr. Sheean: And who, in connection with their work, when the engine is not in service, do move that engine under steam?

Mr. Willsie: Every day.

Mr. Sheean: It may be a few feet, or it may be some little distance?

Mr. Willsie: Yes, sir.

Mr. Sheean: How long have you been familiar with the manner in which the work has been done by the hostlers on the Burlington?

Mr. Willsie: I have been in work where it has been under my observation for thirty-five years.

Mr. Sheean: At what particular place or places did you have charge of the work of the hostlers?

Mr. Willsie: At Galesburg, Illinois, while road foreman of engines, I had jurisdiction over the hostlers; I also had charge of the hostlers at Aurora, Illinois, a short time, while master mechanic; and at Brookfield, Missouri, and Omaha, Nebraska.

Mr. Sheean: And, from your experience, do you believe that, as an essential part of a hostler's education, it is necessary that he ever fire an engine, or be a fireman?

Mr. Willsie: No, sir, I do not think that is necessary.

Mr. Sheean: How have you qualified them for their work, or what is there that is peculiar to the act of being a fireman, that gives one any better qualification for this position, than one who is trained in some other way?

Mr. Willsie: I do not see where the firing of an engine would make him any better hostler. The way the hostlers are usually selected, is from the roundhouse force. Every large terminal has a good many men that have got the qualifications to become hostlers; they are young, aggressive, and have the average intelligence. They might be fire builders, machinists' helpers or boiler makers' helpers, or clinker pit

men. If a vacancy is about to show up, the foreman will pick out a man that he thinks has the qualifications to become a hostler. He may take him out of the roundhouse or out of the clinker pit, and he puts him along with a hostler who has qualified, and he works with that man for a while, handling engines.

Mr. Sheean: That is what is known as an assistant hostler?

Mr. Willsie: Yes, sir; in those cases, it is marked there as assistant hostler.

Mr. Sheean: The assistant hostler works along with the hostler in just what way?

Mr. Willsie: He works with him on the same engine at times, and again he simply takes care of an engine that the hostler will tell him to take care of. For instance, they will have two engines coming in at once, and the hostler will tell the assistant to go and get a certain engine and put it on the clinker pit, or if it is on the clinker pit, to run it into the house, and the engine has to be moved, and many of the clinker pit men themselves move the engine, to make room for another engine, or to get room to clean the ash pan out, depending on the kind of clinker pit you have.

Mr. Sheean: And, assuming that the man from the shops is a man of fair and ordinary intelligence and ambition, about how long does it take to qualify a man of that type, who has had roundhouse experience and is familiar with the yard through working as an assistant hostler?

Mr. Willsie: I do not know of any cases where a man would be taken out of the roundhouse service, or the clinker pit, who has been there less than a year, probably; and if he has been around an engine, where he has seen them moved, or helped move them a year or so, and then you put him under a good hostler, he can qualify safely in a few days' training with that man, and the chances are that he has moved an engine a good many times previous to that.

Mr. Sheean: Do you feel that, with your knowledge of the situation here, any hard and fast rule can be applied to a system like the Burlington that will meet, for instance, this Western Avenue yard, we referred to, and the Prairie du Chien, and Beardstown situation, which you have described.

Mr. Willsie: No, the conditions are so different at differ-

ent points, that I do not think we should have any fast rule. The man in charge, who is responsible for the handling of these engines and these men, can always get good men, and I think it should be left to his judgment.

Mr. Sheean: The Burlington has a good many of these stub lines, has it not, a few miles long?

Mr. Willsie: Yes, sir.

Mr. Sheean: Manned with one or two engines?

Mr. Willsie: Yes, sir.

Mr. Sheean: And those engines, one or two in number, are cared for between their road trips by a man who does everything in connection with the cleaning, rebuilding of fires, recoaling and everything else that is essential, between the time they come in and the time they go out?

Mr. Willsie: Yes, sir.

Mr. Sheean: And in a good many cases the man who performs that work at these smaller places has other work to do around and about that particular point?

Mr. Willsie: Yes, sir; and in some places I know of, he cleans out the coaches, sweeps them out and dusts the seats and fills the lamps, if they are oil burners.

Mr. Sheean: Many of these men are now upon a monthly wage?

Mr. Willsie: Some of them are, yes, sir.

Mr. Sheean: Based upon conditions at the particular points, and just what the work is that is done at those places?

Mr. Willsie: Yes, sir. I do not know exactly the wages, but I should say about $60.

Mr. Sheean: In the matter of this main line movement that is requested here, Mr. Willsie, or in the matter of taking a specified rate for any main line movement, would all of these branch lines of yours fall under the operation of that rule?

Mr. Willsie: Most every one of them would.

Mr. Sheean: Tell us why.

Mr. Willsie: Well, take the one at Schuyler, for instance: he has to move that engine from the roundhouse to the depot; that is a main line movement, but it is the stub end of a branch track.

Mr. Sheean: Tell us why you say that is a main line movement.

Mr. Willsie: Well, I do not see how we can get out of the main line being a main line. If where the trains operate on is main track, I feel we should have to call them main line movements.

Mr. Sheean: As a matter of fact, is not this term "main line" a technical term in railroading, which is covered ordinarily by the books of rules of the different companies?

Mr. Willsie: Yes, sir.

Mr. Sheean: And does not main line, as covered by the books of rules, cover everything practically except yards?

Mr. Willsie: I believe the book of rules quotes it that way, that it is main track where the trains move on.

Mr. Sheean: In other words, main line is not main line in the sense of being the most important part of the system, or again, as distinguished from branch line, but is simply main line as distinguished from a yard?

Mr. Willsie: Yes, sir; you will have a main line on branches as well as a main line on the heavy traffic divisions.

Mr. Sheean: And that is true generally, of all books of rules of all railroad companies?

Mr. Willsie: Yes, sir.

Mr. Sheean: That everything is main line except what is strictly yard?

Mr. Willsie: That is the way I would understand it, yes, sir.

Mr. Sheean: Is it true that anything which may interfere with or impede a movement on the main line, or anything which may foul the main line, is considered a main line movement?

Mr. Willsie: I do not believe I would go so far as to say foul it. He might move it up and foul the main line rails without its being a main line movement, but if he crosses the main line, or puts any part of his engine on the main line, he would have to call it a main line movement.

Mr. Sheean: You say Schuyler is at the end of a run?

Mr. Willsie: A branch.

Mr. Sheean: It is the end of a branch?

Mr. Willsie: Yes, sir.

Mr. Sheean: It is as far as that line goes?

Mr. Willsie: Yes, sir.

Mr. Sheean: But, in the handling of this engine, which is done by this watchman at this time, he has one engine to handle?

Mr. Willsie: He has one passenger engine every night, and one way freight.

Mr. Sheean: One way freight?

Mr. Willsie: Yes, sir.

Mr. Sheean: He is in charge of the motive power at that particular place?

Mr. Willsie: Yes, sir, and does all the work.

Mr. Sheean: And does all the work, and does it on a fixed monthly wage?

Mr. Willsie: Yes, sir.

Mr. Sheean: And in connection with part of that work, he moves each of those engines on the main line?

Mr. Willsie: I would not say he moves the way freight engine, but I know he does the passenger engine.

Mr. Sheean: Well, it would not make any difference, under this proposal, but you know he does move the passenger engine on the main line?

Mr. Willsie: Yes, sir.

Mr. Sheean: This engine watchman, on a monthly wage, would take thirty-one times $4.75, if this proposition was granted?

Mr. Willsie: Yes, sir; and the minimum wage on that rate would be over $140.00 for a thirty day month.

Mr. Sheean: Are there many others of these branches of the Burlington in this same situation?

Mr. Willsie: Quite a few of them.

Mr. Sheean: They are all shown in detail on this form which has been filed here?

Mr. Willsie: Yes, sir.

Mr. Sheean: By the way, have you any colored hostlers?

Mr. Willsie: Yes, sir.

Mr. Sheean: Where are they?

Mr. Willsie: In the state of Missouri, we have some at Hannibal, Missouri, some at Kansas City and I think there are one or two assistant hostlers at St. Joe.

Mr. Sheean: Are their services satisfactory?

Mr. Willsie: Perfectly.

Mr. Sheean: And have there been any accidents or injuries on account of your employing colored hostlers at these points?

Mr. Willsie: Not to my knowledge. I consider them perfectly reliable.

Mr. Sheean: Have you ever acted as a hostler, Mr. Willsie?

Mr. Willsie: No, sir.

Mr. Sheean: Now, Mr. Willsie, have you any knowledge, or can you express an opinion as to the practical effect upon the operation of your railroad, especially at the busy terminals, in case firemen were given the right to step in and step out under seniority rules, to the position of hostler?

Mr. Willsie: I cannot see how that would help or better the service in any way. We have just as good hostlers, I believe, on the Burlington, as any railroad. They have been operating now for a great many years, to my certain knowledge, about thirty-five years, and some of the hostlers at Galesburg, which is the division point I did most of my work out of, we have hostlers who have been in service from twenty-five to thirty years, who were brought up from the roundhouse ranks. I cannot see where making a hostler out of a fireman, he would be any better man than the men we are getting from the roundhouse service, neither can I see how it is going to make a better engineer out of a fireman, to do service as a hostler.

Mr. Park: There would be comparatively few of the firemen who would have an opportunity to hostle, would there not?

Mr. Willsie: Very few of them, and with the continual change of the firemen, that is the worst part of it.

Mr. Sheean: You answered a moment ago, that you did not see that it would do any good. I want to ask you if you can see where it would do a good deal of harm, in the matter of practical and efficient operation, to have firemen holding seniority rights on the road, and coming in and hostling for a while, and then exercising their seniority in getting in and out.

Mr. Willsie: We would not get as efficient service. In the first place, he would only be there temporarily, and would not display the same amount of interest as a man who has that position permanently. He would be changing from hostler to fireman, and his place would be taken by another fireman, and he would have the right to put in his application for the position of hostler at some terminal where he never fired into, and if he

wanted to he could go and take that place, and he would not be familiar with the surroundings, and I do not see how he could possibly give as good service as a man brought up around that terminal, who takes that position and holds it.

Mr. Sheean: Is that usually the situation upon the Burlington, as it is operated now, that in the great mapority of the cases, the people who are doing this hostling work, are those who have grown in and about and in connection with the roundhouse work?

Mr. Willsie: Yes, sir, the majority of cases are men of that kind.

Mr. Sheean: And in case of a disabled fireman or engineer, no longer able to do the work on the road, you fill some of these places with men of that type?

Mr. Willsie: Yes, sir, we have had places filled with men who have been in road service; but as a rule, we take them from the roundhouse service.

Mr. Sheean: That has always been the practice there?

Mr. Willsie: Yes, sir. The Burlington tries to take care of their old employes who have been disabled, as engine inspectors, or any job they can find around the house that they can fill.

Mr. Sheean: I think that is all I care to ask Mr. Willsie.

Mr. Carter: Mr. Sheean, will we find about all of the information that he gave in regard to these tests, on those sheets?

Mr. Sheean: I understand that it is all shown, and right in that connection, it was my thought that, in view of these sheets being filed, each gives the name of the observer, and all that, that we need not take up the time by merely reiterating, but I thought that one witness could give a description of what was done, and then in view of the fact that this was filed, that we need not encumber the record with further testimony as to just how it was done, because that, I understand, is given in each case in the papers that are filed here.

Mr. Carter: And the cases described by this witness are shown in the papers?

Mr. Sheean: I so understand.

Mr. Willsie: Yes, sir; my reports here are just the same; this is a blueprint copy of it.

Mr. Sheean: And all the reports are in those underlying

papers, and I think probably it would be better not to take up time with a mere repetition of the things that are shown there.

CROSS EXAMINATION.

Mr. Carter: What do we understand your position to be?

Mr. Willsie: My employment?

Mr. Carter: Yes.

Mr. Willsie: Chairman of the Fuel Economy Committee.

Mr. Carter: What is your position, superintendent?

Mr. Willsie: No, I am carried on the road as permanent chairman of the Fuel Economy Committee.

Mr. Carter: About how many members are there on that committee of which you are chairman?

Mr. Willsie: I think there are eight.

Mr. Carter: Who are they?

Mr. Willsie: We take the men from different branches of the service, that were brought up in different branches of the service. For instance, we have one superintendent who came out of the despatchers' ranks; another superintendent came up from train work.

Mr. Carter: Are these committeemen all superintendents?

Mr. Willsie: No, there are two superintendents and two master mechanics, and also the general store keeper, who is an authority on buying coal, and the—

Mr. Carter: What is the general purpose of the committee?

Mr. Willsie: I devote my entire time to fuel economy, and the rest of the committee do their regular duties on their divisions, and we only aim to hold a meeting at least once a month at some terminal where we invite, not only the officers, but all of the men that we can get hold of, such as engineers, firemen, conductors, and brakemen, master carpenters, road masters, roundhouse men, switchmen, yardsmasters, and so on, feeling that nearly every one in the service can, in a way, help save coal; and we hold meetings along that line.

Mr. Carter: The general purpose is to save as much coal as possible?

Mr. Willsie: Yes, sir.

Mr. Carter: And to require the fireman to be as economical as possible?

Mr. Willsie: Yes, sir.

Mr. Carter: Then the general purpose of you and your committee, is to have the fireman shovel as little coal as is practicable, to keep steam up?

Mr. Willsie: That is what we would like to have him do, yes, sir.

Mr. Carter: About how much coal are these mechanical stokers on your Santa Fe type of engines burning?

Mr. Willsie: What do you mean, in what way, per mile or hundred ton miles?

Mr. Carter: No, not ton miles, but per locomotive mile.

Mr. Willsie: Well, they are burning, over a 136-mile division, about, I would say, from twenty-three to twenty-four tons up to possibly twenty-eight.

Mr. Carter: Have you ever tried those engines, hand fired?

Mr. Willsie: We tried two of them hand fired, for a while. They were made, though, for stoker firing.

Mr. Carter: About how much time would a fireman put in shoveling twenty-three or twenty-four tons of coal, twenty-eight tons of coal?

Mr. Willsie: On none of our trips, hand fired, do we burn that much. In the first place, the hand fired engines are not as large a type as these; and another reason is that the stoker engines consume more coal per engine mile, because it is a lighter grade of coal, a great deal of slack.

Mr. Carter: This coal is specially prepared for the stoker?

Mr. Willsie: No, we buy it as screenings.

Mr. Carter: Screenings?

Mr. Willsie: Yes, sir.

Mr. Carter: If it was lump, it would not go through the screen?

Mr. Willsie: No.

Mr. Carter: It would have to be broken?

Mr. Willsie: It would have to be broken.

Mr. Carter: What other class of engines have you already equipped with stokers?

Mr. Willsie: Just the two classes, thirty-six Mikados that are 227,000 pounds on drivers, and twenty-seven of what you have termed as the Santa Fe type, the 2-10-2.

Mr. Carter: About how much coal are these stokers put-

ting into the fire box per locomotive mile, with the full rated train?

Mr. Willsie: I can illustrate that better by taking the division from Beardstown to Galesburg, 72 miles; we make turn-arounds there, 72 miles up and 72 miles back. With their full tonnage train, they will burn all the way from 14 tons up to 16 or 18 tons, depending a good deal on weather conditions.

Mr. Carter: One way or both ways?

Mr. Willsie: One way.

Mr. Carter: Do you believe that firemen could do the work that you describe these mechanical stokers are doing, and then make a showing like has been made here as to small amount of coal burned by a fireman?

Mr. Willsie: I have some test trips here, Mr. Carter, by the Mikado hand fired engines, 227,000.

Mr. Carter: About how much coal did you burn?

Mr. Willsie: I will read the trips, north bound, because those were heavy trips where the loads were. The first trip, north bound, was made September 14th. There were 71 cars, 4,681 tons.

Mr. Carter: Pardon me, is that about their rating?

Mr. Willsie: Yes, sir, 4,681 tons; distance, 136 miles; the total time on duty, 12 hours and 15 minutes. They left Centralia at 7:30 A. M., arriving in yards at Beardstown at 6:45 P. M.; consumed 20 tons of coal. That was the hardest trip—burned more coal.

Mr. Park: Now, is that the most extraordinary trip that would be made in this territory?

Mr. Willsie: They burned more coal that trip than any trip on the Beardstown Division, and the Beardstown Division, in my estimation, is the hardest service we have.

Mr. Park: The largest engine in this territory?

Mr. Willsie: The largest hand fired engine.

Mr. Carter: About those 72 miles of track, up and back, have you got a test there on hand fired engines?

Mr. Willsie: No, I haven't any test of those. We figured that the 136 mile run was the hardest service. The firemen agreed to it.

Mr. Carter: I understood you to say that with the mechanical stoker you burned how much coal on this 72 miles?

Mr. Willsie: We burned all the way from 12 to 14, up to 16 tons.

Mr. Carter: Would they not burn as much if they were hand fired?

Mr. Willsie: They don't burn as many tons of coal, per engine mile, hand fired, as the stoker does with the screenings.

Mr. Carter: Is that because the stoker has the ability to fire more coal?

Mr. Willsie: They can fire more than a man can by hand, but on account of the condition of the coal being slack, it takes more of it.

Mr. Carter: You have participated in discussions at Master Mechanics' Conventions and Traveling Engineers' Conventions, have you not?

Mr. Willsie: I have not.

Mr. Carter: You have not heard the contention generally advanced that the one advantage in the stoker is that it can fire more coal than a man? Have you ever heard that advanced?

Mr. Willsie: I have heard it said that they can put in more coal. I believe they can.

Mr. Carter: If an engine burns more coal than a fireman can properly burn, because of his physical inability, it is claimed, is it not, that the stoker has the physical ability to do it?

Mr. Willsie: I think it has the physical ability to do better than any fireman, yes, sir.

Mr. Carter: Will you please describe the engine that operates the feedworm? Will you explain what kind of an engine that is, and where it is?

Mr. Willsie: Yes. A small engine, up near the top of the boiler, on the left hand side. This little engine, too, operates the endless buckets—chain buckets, we call them. It also operates the worm or screw that takes the coal from the tank to the chain buckets. It also operates the shaker, which works the coal into the trough. We also—this engine is controlled by some cams regulating the steam jets to throw the coal into the fire box.

Mr. Carter: One engine operates all the stoker?

Mr. Willsie: Yes.

Mr. Carter: Suppose the coal is feeding too fast—I mean coming into the stoker too fast to be delivered promptly; do you have a way of adjusting that?

Mr. Willsie: It takes care of that, by itself, but we can control the speed of the engine—seven different speeds, or if you are getting too much coal in the fire box, and the engine is about to pop, there is just one movement of the lever stops the stoker working, and another movement starts it in again.

Mr. Carter: It requires a considerable amount of coal to build up a fire properly, with a heavy train going out—nearly a ton of coal, perhaps?

Mr. Willsie: No, a man does not put in a ton of coal.

Mr. Carter: I mean by the time he gets the fire up?

Mr. Willsie: No, the fire-up man leaves the fire in pretty good condition, so when the engine crew gets on the engine, it does not take very much of the fireman's time to build it up. I should say it won't take an average of half a ton. He can do that with the stoker, but the instructions are it would be better to build it up by hand.

Mr. Carter: Have you found, Mr. Willsie, that when a stoker is operated properly and economically, it requires a considerable degree of skill?

Mr. Willsie: Nothing special; just attention.

Mr. Carter: If the manufacturers of practically all stokers would say that their stoker will not work properly unless handled properly by a man who knows his business, would not you agree with that?

Mr. Willsie: Like any other piece of machinery, it should be handled properly. Just as easy to handle it properly as improperly.

Mr. Carter: Have you heard the complaint of stoker manufacturers that it is because of the lack of experience of engineers and firemen that stokers have failed?

Mr. Willsie: No, I have not heard that. I know, on our road, the stoker engines are in the pool, the same as others.

Mr. Carter: How many stokers have you now in service on the C. B. & Q.?

Mr. Willsie: I think 61.

Mr. Carter: How many were there ordered by you about a year and a half ago, when the order was put in?

Mr. Willsie: As far as I know, the order was filled. We had 35 applied to the Mikado engines, and they ordered 25 new engines of the 2-10-2 type.

Mr. Carter: Santa Fe type?

Mr. Willsie: Santa Fe type; all mechanical stokers.

Mr. Carter: Were all of the engines received, equipped with stokers?

Mr. Willsie: All of the Santa Fe?

Mr. Carter: No, all of the Mikados ordered within the last year and a half.

Mr. Willsie: No; they came to us as hand-fired engines, and 35 of them were equipped, later on, with the mechanical stoker.

Mr. Carter: Do you believe these stokers have been a great relief to the firemen, on these big engines?

Mr. Willsie: No doubt about that.

Mr. Carter: On the heavy and perhaps fast runs, do you think they can shovel more coal and keep the engine hotter than the tired fireman, with a scoop shovel?

Mr. Willsie: These engines are not in fast service. They are in heavy service.

Mr. Carter: Does the stoker apparently make a higher efficient engine, when they are large engines and heavy tonnage?

Mr. Willsie: I think we can get better service out of them with a stoker, than we can hand firing, yes.

Mr. Carter: Where are these elevator pipes located on a stoker?

Mr. Willsie: On the back boilerhead.

Mr. Carter: About what is the diameter of those pipes?

Mr. Willsie: About 10 inches.

Mr. Carter: How close do they touch the boilerhead?

Mr. Willsie: They are away from the boilerhead, 12 to 15 inches, because the boilerhead slopes more than the pipes do.

Mr. Carter: About how far would the back edge of those pipes be from the boiler, in the back end of the cab, in front of the fireman's seat box?

Mr. Willsie: They will take up—oh, 16 or 18 inches, at the bottom.

Mr. Carter: If a stoker became deranged, or had to be abandoned, would not those pipes be greatly in the way of a fireman, firing coal?

Mr. Willsie: Not a bit.

Mr. Carter: Would not be in the way of his left elbow?

Mr. Willsie: No, sir, do not interfere with his movements or work at all, as far as shoveling by hand.

Mr. Carter: In regard to these hostlers, I understood you to say that these men that you employ in the roundhouse, are very efficient men?

Mr. Willsie: I think we have just as good hostlers as any railroad.

Mr. Carter: What wages do you pay them?

Mr. Willsie: Why, they vary. They run—I think the highest pay is about 25 cents an hour.

Mr. Carter: What is the lowest pay?

Mr. Willsie: Some of the assistant hostlers or fireknockers, that do some hostling as well, as low as 17½ cents, I believe.

Mr. Carter: Do you think that there would be any objections, on your railroad, to paying these men that are so efficient, as high wages as men employed on other roads in this district are now being paid?

Mr. Willsie: I could not answer that question.

Mr. Carter: If it should be shown that men are employed on other roads, doing the same work that you describe, and are no more efficient than you say these men are, don't you think that if you had charge of the matter, you would be willing to reward these efficient men, who had come up from the roundhouse force, just the same as other roads reward their hostlers?

Mr. Willsie: I tell you what I do think, that there is nothing about the work that justifies paying $100 a month, minimum, at some of our outlying points, and neither do I think there is anything in the work that justifies paying as high as $185, which this will bring, in some instances.

Mr. Carter: I understood you to say you have some hostlers, at outlying points, that act as foremen and repair men, in addition to hostling work. Do you not think that a man who acts as foreman and repair man, in addition to hostling work, is worth as much as just an ordinary hostler is on some other roads?

Mr. Willsie: He does not have as much work to do as some of the hostlers.

Mr. Carter: Well, a man acting in the capacity of a foreman or repair man, is doing more than hostling, is he not?

Mr. Willsie: No; he has not got enough to do to keep him busy, taking care of one or two engines.

Mr. Carter: Where he is taking care of one or two engines, it requires his attention, does it not, to take care of them, besides moving them?

Mr. Willsie: Yes, sir; there are several hours in the night he won't have anything to do whatever.

Mr. Carter: Is he responsible for those engines?

Mr. Willsie: Yes, sir.

Mr. Carter: Suppose the weather is very cold, would he have to pay close attention to the engine?

Mr. Willsie: It depends upon what kind of a roundhouse he has to keep the engine in. If he has plenty of heat in the roundhouse, he hasn't much to look after.

Mr. Carter: At these outlying points, what kind of roundhouses do they generally have?

Mr. Willsie: Usually made out of wood; some of them brick veneered, heated principally by stoves.

Mr. Carter: Just have one engine?

Mr. Willsie: Sometimes one, sometimes two or three.

Mr. Carter: Do you have them at all the terminals of your branches?

Mr. Willsie: I do not think we have any now, but we do have roundhouses or sheds to put an engine in.

Mr. Carter: And they are kept so warm in there, that the engine is in no danger of freezing up. Who keeps the roundhouse warm?

Mr. Willsie: The same man.

Mr. Carter: Then he has other duties?

Mr. Willsie: Oh, yes.

Mr. Carter: What class of men do you engage to do this work?

Mr. Willsie: What class?

Mr. Carter: Yes, sir.

Mr. Willsie: We usually pick the men from the roundhouse force.

Mr. Carter: I mean when you are employing roundhouse men.

Mr. Willsie: We take whatever suits us. A man comes along and looks like he would make a good foreman, and we need him, we will hire him.

Mr. Carter: Would you not just as soon employ some of these experienced firemen, who are out of jobs and now hunting work?

Mr. Willsie: I haven't anything against any fireman, out of a job, hunting work.

Mr. Carter: I did not think you would, if you had your say about it. I have been watching you. On those 2-10-2 engines —those huge engines, where they are pulling very heavy trains and these Mikados, where they are pulling heavy trains, if, because of the introduction of these large engines, firemen have been displaced from employment, wouldn't you, if you had your way about it, give them jobs hostling, in preference to going outside and getting somebody who had never been working for the company?

Mr. Willsie: I would not feel justified paying him $100 a month, because he had been a fireman.

Mr. Carter: Suppose this Board does fix the wage for hostlers and the wage is like a fireman's wage. For instance, even as high as some firemen make or these Governors we were talking about. Suppose, in case this Board fixes the wage commensurate with the duties of these men, you would not object to giving firemen these jobs, would you, in the place of going out and hiring strangers?

Mr. Willsie: I have nothing against giving a fireman a job, sir.

Mr. Carter: That is all.

Mr. Stone: How many years did you say you were a fireman?

Mr. Willsie: About five years.

Mr. Stone: How many years as an engineer?

Mr. Willsie: About five.

Mr. Stone: On what division of the Burlington did you run?

Mr. Willsie: The Galesburg Division.

Mr. Stone: Freight service?

Mr. Willsie: Both freight and passenger, principally freight.

Mr. Stone: On those test trains between Galesburg and Chicago, how much coal did you burn per trip?

Mr. Willsie: The hardest trip, I think, was 26 tons. I can tell you in a moment. I think that was the last trip we made.

Mr. Stone: 26 tons?

Mr. Willsie: Yes, sir, 26 tons.

Mr. Stone: How many hours was he engaged in firing that?

Mr. Willsie: The trip on that class of engine—do you mean from the time he left until he got in?

Mr. Stone: No, I mean the actual time engaged putting coal in the box.

Mr. Willsie: Three hours and forty-one minutes and two seconds.

Mr. Stone: That is about seven tons an hour?

Mr. Willsie: I would imagine it would be close to that, yes.

Mr. Stone: We are to understand that in three hours and forty-one minutes and two seconds of the time that he was actually engaged in putting coal into the box, that he shoveled those 26 tons of coal, besides his other duties?

Mr. Willsie: That is the only time he consumed it—handled that amount of coal, spread over this period that he was on the road.

Mr. Stone: It does not make any difference how much time he was on the road. He actually handled the coal in this amount of time?

Mr. Burgess: How long was he on the road?

Mr. Willsie: His actual time on duty was 14 hours and 15 minutes.

Mr. Shea: Was that a superheater engine?

Mr. Willsie: They are all superheated that the tests were made on.

Mr. Stone: That is a 155 mile division?

Mr. Willsie: Yes, sir.

Mr. Stone: A little over 6 miles per ton of coal. I believe you stated on that trip, September 5th, that in the heaviest hour he worked, he put in 296 scoop fulls of coal. Is that correct?

Mr. Willsie: I believe that is correct.

Mr. Stone: You heard Mr. Tollerton testify here the other day in regard to the question asked by the Chairman, and he

stated that with a tonnage train, on level track, he would put in a fire every ten minutes?

Mr. Willsie: I believe he changed those figures later on, did he not?

Mr. Stone: Later he changed them to 8 minutes, I believe.

Mr. Willsie: I think he said two minutes.

Mr. Stone: Two minutes?

Mr. Willsie: I think that is what he said. I know he qualified and said his figures were wrong.

Mr. Stone: If he put in 296 scoop fulls of coal in one hour, he put in about five every minute, did he not?

Mr. Willsie: About that, yes.

Mr. Stone: I guess he did not straighten up at all in that one hour, did he?

Mr. Willsie: Oh, yes.

Mr. Stone: Well, he did not much more than do that?

Mr. Willsie: You can put in five scoops of coal in thirty seconds, easy enough.

Mr. Stone: Then he would take the kinks out of his back and put in five more in the next thirty seconds, and he kept that up for an hour, and in that hour, according to your figures, he handled 5,328 pounds of coal?

Mr. Willsie: Yes, sir; on that trip. We did have some handle more than that.

Mr. Stone: What is the capacity, do you think, of a fireman hand firing coal? I do not mean for just a spurt, but a speed he can keep up—how many pounds per hour?

Mr. Willsie: For how many hours, ten hours?

Mr. Stone: Oh, one of these ordinary drags, whatever it happens to be.

Mr. Willsie: I believe a man can fire two and a half or three tons an hour and keep it up.

Mr. Stone: That is 6,000 pounds an hour?

Mr. Willsie: Yes, sir.

Mr. Stone: In ten hours, you think he could easily handle 60,000 pounds—30 tons?

Mr. Willsie: I do not say easily, in that 10 hours period. He would probably get something to eat.

Mr. Stone: He would probably need something to eat, would he not?

Mr. Willsie: He certainly would.

Mr. Stone: I think so, if he kept up that rate.

Mr. Willsie: I am simply qualifying. You said straight ten hours.

Mr. Stone: You said straight ten hours, 6,000 pounds per hour. For ten hours that is 60,000 pounds, or 20 tons.

Mr. Willsie: I think there are men can do that, yes.

Mr. Stone: You think there are men can do that and keep it up, day in and day out, for a month?

Mr. Willsie: I do not know any service that would require that, Mr. Stone. It would take a pretty husky man to do that, and there is no service that ever figures out as heavy as that, that I know of—anywhere as near as heavy as that.

Mr. Stone: Well, in that last trip you had there, where you burned 26 tons in 155 miles, that figures 335 pounds of coal per mile, does it not—if Carter's figures are right here? I haven't figured them myself.

Mr. Willsie: About that, I should say. You understand, though, that includes all the coal that was burned on the trip, around the yard, as well as after the leaving of the train?

Mr. Stone: I understand; it is all estimated?

Mr. Willsie: Yes, sir.

Mr. Stone: And the chances are that it is estimated somewhere near right?

Mr. Willsie: We felt so. We got the crew with us, so that there would be no misunderstanding.

Mr. Stone: We will give you the leeway, one way or the other.

Mr. Willsie: Yes.

Mr. Stone: And when it gets down to the matter of thirty tons, two or three tons one way or the other doesn't make much difference anyhow. After a fireman has shoveled thirty tons, he would just as lief shovel three more, I suppose?

Mr. Willsie: We didn't have any trips where they shoveled thirty tons, Mr. Stone.

Mr. Stone: Twenty-six was the most?

Mr. Willsie: That was the hardest of any of them, yes, sir.

Mr. Stone: Coming back, now, to the trip of seventy-two miles, turn-around—

Mr. Willsie: These other three trips on the same terri-

tory, they burned 19, 15 and 16 tons. On one trip they burned 26.

Mr. Stone: Take that 136 mile division from Beardstown to Centralia; is that what it is?

Mr. Willsie: Yes; from Centralia to Beardstown is a hard pull, northbound.

Mr. Stone: You say they burned from twenty-three to twenty-eight tons?

Mr. Willsie: On the test trips, if I remember right, it was twenty. I think it was twenty on the test trip—hand fired.

Mr. Stone: Hand fired? Was it the stoker that was burning twenty-eight tons?

Mr. Willsie: We have, with the large class of engines, burned as much as that with the stoker.

Mr. Stone: That is 4.85 miles to a ton?

Mr. Willsie: Twenty tons is the most shoveled at any trip.

Mr. Stone: Twenty tons?

Mr. Willsie: Yes, the other trips were eighteen, seventeen and seventeen.

Mr. Stone: When he shovelled twenty tons he was making 6.8 miles per ton of coal?

Mr. Willsie: About that. He had a heavy train, 4,681 tons.

Mr. Stone: In this seventy-two mile turn-around, it was fourteen to eighteen tons of coal each way?

Mr. Willsie: With the stoker engine, we burned from twelve to fourteen, up to sixteen tons, each way, I should say. That is northbound. We do not burn as much coming back with the empties. They get back with the empties on those runs without taking any coal, without pulling any down.

Mr. Stone: Will this Street stoker keep coal in the fire box on one of those big Santa Fes, working hard on a hill at the full stroke of the engine?

Mr. Willsie: Yes, sir.

Mr. Stone: The fireman does not have to help it out with the scoop?

Mr. Willsie: The majority of the time he never opens the door, except to peek in to see if it looks all right.

Mr. Stone: Were you here to hear the testimony of Mr. Jacobs, of the El Paso & Southwestern?

Mr. Willsie: I was not.

Mr. Stone: He testified that, with the Street stoker working full capacity on the hills, and the fireman helping out, they could keep coal in her.

Mr. Willsie: There is something wrong with the fireman or something, then. We don't have to do that, and we pull heavy trains—5,500 tons, Santa Fe engines, Santa Fe type.

Mr. Stone: Did you ever have any trouble with the lignite coal in the West, keeping coal in them?

Mr. Willsie: We haven't got stokers in the lignite territory.

Mr. Stone: Does the fireman have trouble keeping coal in them?

Mr. Willsie: They have plenty to do, but they keep the engine hot. They like the lignite coal there, and would not go back to the bituminous, for anything, in that territory.

Mr. Stone: Why do they like the lignite coal—because it is so light that it does not hit the fire at all, but goes ahead through?

Mr. Willsie: They don't have to shake the grate, they are free steamers, and they prefer the lignite to the bituminous coal.

Mr. Stone: It is a fact, is it not, that with your big engine working to the full capacity, the fireman with lignite coal is generally about three scoops behind all the time?

Mr. Willsie: No; he gets ahead and stays ahead. He has to do that. That is the proper way to fire any locomotive.

Mr. Stone: To get ahead and stay ahead?

Mr. Willsie: Yes.

Mr. Stone: If he can.

Mr. Willsie: They do it. There was no trouble about steam on any of these trips.

Mr. Stone: I am particularly interested in those young, ambitious fellows who are coming up through the roundhouse, who are looking to the future and want to be hostlers. I think you stated that these fellows were young and full of snap and energy, and ambitious, and you thought they would make good hostlers, or ought to be hostlers. Do you believe a man that has got that snap and vim and ambition in him will be satisfied to settle down for life on a job at $60 a month?

Mr. Willsie: I do not believe I used those words, Mr. Stone, that they were full of snap, and vigorous and ambitious.

Mr. Stone: I think you did. I have no desire to misquote you. You did not use the word "snap," I believe, but you did say they were young and ambitious; and I naturally supposed that if they were young and ambitious, they had snap in them.

Mr. Willsie: That would be the height of ambition, to some people.

Mr. Stone: That would be?

Mr. Willsie: It would.

Mr. Stone: $60 a month would be the height of his ambition?

Mr. Willsie: They make more than $50 a month, the hostlers in those big terminals.

Mr. Stone: But I thought you said in the small terminals?

Mr. Willsie: No, sir, these are in the big terminals. They make ninety dollars a month.

Mr. Stone: Wouldn't you have your doubts about the brand of a man's ambition who would be contented to sit down and acquire a home and a competency for his old age, and be contented with $90 a month?

Mr. Willsie: I do not believe I would worry much about that; if he was satisfied and did his work well, the employer should be satisfied.

Mr. Stone: But is the man who is ambitious ever satisfied?

Mr. Willsie: No; some of them are not.

Mr. Stone: I think you said this question of these hostlers, where their positions should be filled from, should be left to the judgment of the local officials?

Mr. Willsie: I feel that it should be, yes.

Mr. Stone: You don't think it is possible, on account of the peculiar duties of the work and the peculiar requirements of the work, to make a pretty general rule that will apply?

Mr. Willsie: I do not think so.

Mr. Stone: Did we not formerly hear that same argument put up when we talked about making a standard wage scale on our railroads?

Mr. Willsie: I could not answer that.

Mr. Stone: You have been in the railroad game a long time —thirty-five years, I believe you said?

Mr. Willsie: Yes.

Mr. Stone: You can remember the days when we did not have any seniority, and we used to hear that same claim, that the interests of the man should be left to the local officials?

Mr. Willsie: I don't know that I ever heard that. No, I never heard that.

Mr. Stone: If you have been in the railroad service thirty-five years, you have been in it longer than I have, and I know I was in the railroad game long before we had seniority.

Mr. Willsie: Possibly you were on some committee or something that I was not on.

Mr. Stone: No, I was not on a committee. I haven't been on a committee all my life.

You happen to be one of those fortunate fellows that didn't need a committee?

Mr. Willsie: I haven't needed one so far, no, sir.

Mr. Stone: You don't belong to any labor organization, do you?

Mr. Willsie: No, sir. They were not in style on these roads when I was firing and running.

Mr. Stone: So I understand. They happen to be in style now, though, do they not?

Mr. Willsie: Yes.

Mr. Stone: And I happen to be the man that assisted in making them in style, too.

Mr. Willsie: I suppose so.

Mr. Stone: And as to those colored hostlers, what rate of pay do you give them?

Mr. Willsie: I would have to look at the list. I don't know as I can tell all of them. I can't tell by their names what color they are, but I happen to know some of them.

Mr. Stone: Look for your most efficient man and your highest salaried man, and you will get him.

Mr. Willsie: At Hannibal, the pay is 23½ cents an hour, and I think all our hostlers are colored.

Mr. Stone: What do you pay at St. Louis?

Mr. Willsie: Let me answer first as to Kansas City. I happened to notice some colored men there. We pay 23 cents

at Kansas City for colored hostlers. At St. Louis we have white hostlers.

Mr. Stone: At St. Louis you have colored hostlers, some, at least. I beg your pardon for contradicting you.

Mr. Willsie: I don't know of any.

Mr. Stone: At St. Louis?

Mr. Willsie: No, sir.

Mr. Stone: I am pretty certain, but I will let it go for the present.

Mr. Willsie: I would not swear to that, but I don't believe they have any colored hostlers at St. Louis. I do know, however, that we have them at Hannibal and Kansas City.

Mr. Stone: I think I have got something over in my files about your colored hostlers at St. Louis, making main line movements down through the yard, and washing out stock cars at the stock yards, and all that sort of thing. I think I have something in my files in regard to that.

Mr. Willsie: I don't think our hostlers have to make any main line movements at St. Louis.

Mr. Stone: I beg your pardon. I have no desire to contradict you while you are on the witness stand, but I have something in my files in regard to that, that I shall be glad to show to you.

Mr. Willsie: All right, sir.

Mr. Stone: What rates of pay do you pay in St. Louis?

Mr. Willsie: It shows here $2.60.

Mr. Stone: What rates of pay do you pay in Chicago, at your big Western Avenue—

Mr. Willsie: I think the hostlers' pay is 25 cents, working twelve hours; he gets twelve hours pay.

Mr. Stone: $2.60 at St. Louis for twelve hours, you said?

Mr. Willsie: $2.60 a day, it is marked here, 11 hours.

Mr. Stone: They evidently have the meal hour?

Mr. Willsie: I assume they do.

Mr. Stone: That is all.

Mr. Park: Do you have any difficulty in employing all the hostlers you want?

Mr. Willsie: None whatever, Mr. Park.

Mr. Park: And perfectly competent men?

Mr. Willsie: Yes; I think just as good hostlers as our neighbors on any of the railroads.

Mr. Byram: I would like to read to you from the testimany of Hostler Holloway, a witness cross-questioned by Mr. Carter.

Mr. Park: Mr. Carter's witness?

Mr. Byram: Yes.

I will read from page 1,424 of the record. The record shows that Holloway is a hostler for the Burlington at Western Avenue, the place about which you have just spoken.

Mr. Willsie: Yes, sir. I know him.

Mr. Byram: The question is asked by the Chairman:

"Is one required to have had experience as an engineer before he can be a hostler?

"Mr. Holloway: On some roads, but on the Burlington you are supposed to be an experienced man around an engine before you can handle one.

"The Chairman: I do not understand what you mean by an experienced man around an engine. What do you mean by an experienced man around an engine?

"Mr. Holloway: A man that has handled engines. Take, for instance, you were in some position around a roundhouse; before I was a hostler I was a fire-up man. That gives you a good deal of experience in and around an engine, and then when they want to break you in as a hostler, they will put you on an engine with a hostler three or four days, and make an expert of you."

Is that your understanding of the manner of making hostlers on the Burlington?

Mr. Willsie: About along that line.

Mr. Byram: That is, that they are taken from fire-up men and others?

Mr. Willsie: Yes; and clinker pit men, and so on.

Mr. Byram: And then put on for a short time with a hostler to learn how to handle men?

Mr. Willsie: Yes; but we put another man on the engine for the first two days that can take care of it, if anything goes wrong.

Mr. Byram: First, he has acquired a familiarity with the engine by being around it?

Mr. Willsie: Yes; I think this man said he had been over in the roundhouse a year or a little over before he was made a hostler.

Mr. Byram: Further on, he said, in answer to this question:

"Mr. Carter: How many years' experience have you had as a hostler?

"Mr. Holloway: Twelve years and three months."

But some place else I think he stated that he was there a year before he was a hostler.

What I am trying to get at is, not particularly the time it takes, but is that the process?

Mr. Willsie: Yes, sir.

Mr. Byram: Is it your experience that in that process men are developed into capable and efficient hostlers?

Mr. Willsie: Yes, sir.

Mr. Park: If a man wanted to go on the road as a fireman, there is nothing that bars his way, is there? He could give up the position as hostler and take a position as fireman, could he not?

Mr. Willsie: Certainly; if he is qualified.

Mr. Park: And become an engineer?

Mr. Willsie: He has the same possibility.

Mr. Park: And master mechanics, and go up just as high as he shows a capacity for increased responsibility?

Mr. Willsie: Yes. In taking firemen we take them from wherever we can get them. We like to have a man that has had some roundhouse experience, as roustabout, or machinist's helper; they learn things in the roundhouse that are always very beneficial later on.

Mr. Park: You have men coming along right behind, that are capable of filling these positions, that have worked around the roundhouse for a year, and are glad to be advanced to hostler's helper and then to hostler?

Mr. Willsie: Yes, sir.

Mr. Byram: Is there any good reason why it should be necessary for a man, before he becomes a hostler, to first be a fireman?

Mr. Willsie: No, sir.

Mr. Byram: Instead of being a hostler and then the next step in promotion being to the position of fireman?

Mr. Willsie: I do not see any good reason why he should be a fireman before he becomes a hostler. Neither do I see any good reason why he should be a hostler before he becomes an engineer. I feel that every month he puts in as hostler, he would be better off to put those months in on engine firing.

Mr. Byram: He would learn more about an engine, and qualify himself better to be an engineer?

Mr. Willsie: Yes, sir.

Mr. Byram: If he fired an engine, rather than to spend the time as a hostler?

Mr. Willsie: Yes. If a man put in a year as a hostler, and then was made an engineer, I do not think he would be as good a man as if he came right out of the ranks as a hostler? He gets rusty on railroad matters on the division on which he might be working.

Mr. Park: Who would be more apt to put an engine through the roundhouse wall or into the pit, a man who had handled an engine around the turn-table for a year as a hostler, or a fireman who had just come in off the road attempting to do that?

Mr. Willsie: I would rather take a man brought up in the roundhouse service. As we speak of it, he is not quite so "speedy" as the fireman, as a rule.

Mr. Park: It requires considerable nicety of judgment to balance an engine on the table?

Mr. Willsie: Yes.

Mr. Park: To handle it under those conditions?

Mr. Willsie: I do not mean to be understood as saying that the fireman could not qualify to be a hostler, at all.

Mr. Byram: If he was only doing it for a trip, or intermittently, he would not be any better or more competent than the other man?

Mr. Willsie: No, sir.

Mr. Nagel: When you have these meetings, about once a month, where you consider questions of economy and consumption of fuel, do you invite the engineers and firemen?

Mr. Willsie: We invite the engineers, the firemen, the con-

ductors, brakemen, chief despatchers, trip despatchers, and what roundhouse men we can spare.

Mr. Nagel: You find them all ready to co-operate?

Mr. Willsie: They all take very favorably to it. We have got good results by co-operation.

Mr. Nagel: A good engineer is interested in the record of his engine?

Mr. Willsie: Yes.

Mr. Nagel: And so is the fireman?

Mr. Willsie: Yes.

Mr. Nagel: When you made these tests, the engineers and firemen were co-operating with you?

Mr. Willsie: Yes, sir. We did not ask anything special. We just let them do the work as they would ordinarily.

Mr. Nagel: They knew the result of your observations?

Mr. Willsie: I suppose they did. I didn't make any pretense to cover up anything. I just simply kept track of it. I do not remember that the boys ever asked any questions about it.

Mr. Nagel: Was any question made as to the accuracy of your observations as to time?

Mr. Willsie: No. We had the engine crew estimate the coal with us, so we would understand it alike.

Mr. Nagel: Those tests would go to show that a good deal of coal was handled by the fireman in relatively short periods of time, spread over a number of hours?

Mr. Willsie: Yes, sir.

Mr. Nagel: That would, in turn, show that the time was short, but perhaps the work, while it lasted, was correspondingly harder?

Mr. Willsie: They work very hard while they are at it. The fireman has hard duties.

Mr. Park: In your committee work, are you able to show a good many firemen that by firing a certain way they can get over the road by burning less coal than they have been burning?

Mr. Willsie: Some of them look at it in the right light, and others look at it in the wrong light; but in the long run, before we get through with them, they are willing to admit that the instruction was proper. I often make trips with them.

Sometimes yet, I go down and take hold of a scoop, and shovel, to show them it can be done.

Mr. Park: How much coal have you reduced the work—that is, measuring by tons of coal, in any particular case, by showing the improved method of firing?

Mr. Willsie: I cannot answer that exactly.

Mr. Park: Well, approximately.

Mr. Willsie: Per hundred ton mile basis, in the year 1913, over 1912, we showed a saving of over $400,000. Some of it was accounted for by superheated engines, some by larger engines, some of it was co-operation of the men, in trying to save coal—not only the engine men but trainmen and despatchers.

Mr. Burgess: I would like to ask you a question or two relative to the stoker. I notice in reading these books that you handed to the Board, a statement as follows: "The stoker was designed to fire heavy locomotives with screened or crushed coal." Do you think that is a correct statement?

Mr. Willsie: This style of stoker cannot handle anything except—

Mr. Burgess: The Street stoker?

Mr. Willsie: Yes; that will not handle lump coal.

Mr. Burgess: You think that the stoker was designed for the purpose of firing the heavy locomotives, do you not?

Mr. Willsie: Yes, sir.

Mr. Burgess: Do you equip your engines with a fire hook or rake?

Mr. Willsie: All of our engines have one on.

Mr. Burgess: Do you think you can successfully operate a stoker if you do not have a fire hook or rake?

Mr. Willsie: Yes; we make trips without using the rake or hook at all.

Mr. Burgess: Then what does this statement mean, in this book of instructions which you handed up to the Board, in order, I presume, to give the Board some light on this question, wherein it states:

"Do not use hook or rake unless absolutely necessary. However, it is a good plan to feel the fire, when first starting out, to see just what condition it is in."

Would that not imply that the fireman should feel his fire with his hook to see how it was, before he started out?

Mr. Willsie: Not necessarily, at all, no, sir. That is from the stoker's standpoint. Burning coal of a different kind, in different territories, that might be the proper thing to do, in some territories. We do not have to do that.

Mr. Burgess: These instructions, then, are not applicable to your company or your road, in all respects?

Mr. Willsie: As far as the instructions are concerned, they are applicable, but we do not have to feel of the fire before we start out at any time.

Mr. Burgess: If you did feel the fire, in the event the fuel was changed, then it would be necessary, according to those instructions, to have the hook, would it not?

Mr. Willsie: I imagine that was put in there to cover territories where they burn a coking coal, and probably it would have to be stirred up. We do not have that trouble.

Mr. Burgess: Then all your engines are equipped with a hook or a fire rake?

Mr. Willsie: A hook or a rake or a hoe, as we call it, yes.

Mr. Burgess: In that respect you differ very materially from the Rock Island, where none of their engines are equipped with a hook or a rake?

Mr. Willsie: I don't know anything about the Rock Island. We carry them on our engines.

Mr. Burgess: Now, Mr. Willsie, it is a fact that the stoker was designed to fire the heavy locomotives, is it not?

Mr. Willsie: I suppose that is what they designed it for, yes, sir.

Mr. Burgess: You are willing to admit that?

Mr. Willsie: Yes. We do not need them on the lighter engines.

Mr. Burgess: If I remember correctly, you said in answer to Mr. Stone's question, that it was possible for a stoker to supply all the fuel that was needed to the locomotive. Is that right?

Mr. Willsie: It is possible, yes, sir.

Mr. Burgess: You do not know of any instance where it was necessary for the fireman to assist the stoker?

Mr. Willsie: We do not have to do it on ours, and we haul as heavy a tonnage as anyone, I guess.

Mr. Burgess: If the engine was working and pulling the tonnage that you stated in your test train, which, if I remember correctly, was about forty-seven loads?

Mr. Willsie: 4,600 tons, I think.

Mr. Burgess: 4,600 tons; would you feel that it was necessary for the stoker to be continually working while the engine was working?

Mr. Willsie: No; we shut it off for a moment or two occasionally.

Mr. Burgess: For a moment or two?

Mr. Willsie: Yes.

Mr. Burgess: How much time do you suppose you would shut down the stoker in traveling a distance of 100 miles, pulling 4,600 tons?

Mr. Willsie: That would depend a good deal on how many stops you made, or how many slow-downs you made.

Mr. Burgess: I was speaking of the time the engine was moving.

Mr. Willsie: You can regulate that feed, as far as the stoker is concerned, so it probably wouldn't have to be shut down at all.

Mr. Burgess: It would not have to be shut down at all?

Mr. Willsie: When it is in motion.

Mr. Burgess: Would it be necessary to operate it all the time while the engine was pulling the train?

Mr. Willsie: We can regulate the feed so fine that we can almost operate it continuously.

Mr. Burgess: All the time?

Mr. Willsie: Yes; or we can increase it to meet the exigency of the demand of the engine.

Mr. Burgess: Would you believe that the stoker could stand at rest, pulling that 4,600 tons over a period of thirteen hours, for nine hours and 19 minutes?

Mr. Willsie: The stoker?

Mr. Burgess: Yes.

Mr. Willsie: No.

Mr. Burgess: Well, then, if the fireman was only three hours and 41 minutes shoveling 26 tons of coal, he could do more and better work than the stoker?

Mr. Willsie: No; I am not agreeable to that. The stoker

puts the coal in in small amounts at a time, different from hand-firing entirely.

Mr. Burgess: According to your testimony, if I remember correctly, Mr. Willsie, in a spread of thirteen hours, the fireman consumed 3 hours and 41 minutes shoveling twenty-six tons of coal?

Mr. Willsie: Yes.

Mr. Burgess: Which would give him a state of rest of nine hours and 19 minutes?

Mr. Willsie: No; I think I did not say that. There are some other duties there in addition to the shoveling of coal.

Mr. Burgess: But he was only shoveling coal three hours and 41 minutes. The stoker does not do anything but shovel coal. It does not sweep the deck, or ring the bell, or shake the grates, does it?

Mr. Willsie: No, sir. The stoker is shoveling coal all the time, a small amount of coal at a time.

Mr. Burgess: How much time do you think the stoker could stay at a state of rest? The fireman had nine hours and 19 minutes.

Mr. Willsie: That would all depend on the way you were handling the stoker. I would rather cut it down, just the same as feeding water to a boiler, and feed it gradually and continuously.

Mr. Burgess: You would rather cut it down and keep it working continually?

Mr. Willsie: Yes, you would get better combustion.

Mr. Burgess: Would you not get better combusion with the fireman if you could do the same way?

Mr. Willsie: Yes, sir.

Mr. Burgess: You do not know, Mr. Willsie, how much time the stoker could remain at a state of rest, transferring twenty-six tons of coal from the tender to the fire box in the period of thirteen hours?

Mr. Willsie: You could arrange that in different ways. It could be at rest about the same amount of time that the fireman was; but it is better to be a continuous performance of putting in the coal; it is far better.

Mr. Burgess: Would you get the same results?

Mr. Willsie: I think we could. I will explain that: A

fireman can put in what we call a "slug," and then not put in another fire for a minute or two more. A stoker will not do that. The coal is going in in small quantities at a time, and if you close down the stoker when the engine is working strong, it probably would be closed but a few seconds until you would start the feed again.

Mr. Burgess: If the fireman can shovel coal into the fire box so much more successfully than the mechanical stoker, and only work three hours and 41 minutes out of a total of thirteen hours spread, where is the necessity of purchasing a stoker?

Mr. Willsie: He cannot fire more successfully by hand than the stoker does.

Mr. Burgess: He can not what?

Mr. Willsie: He cannot fire more successfully. You just asked the question if he could. He cannot.

Mr. Burgess: He cannot fire more successfully?

Mr. Willsie: No, sir.

Mr. Burgess: Can he fire as good?

Mr. Willsie: No, sir. He cannot fire as good as the machine will.

Mr. Burgess: In what way does he lack in producing as good results as the stoker?

Mr. Willsie: One reason is that he cannot fire as light as the stoker engine will fire. Another one is that the door is open a great deal more, and you do not get as good combustion.

Mr. Burgess: Why can he not fire as light?

Mr. Willsie: It is impossible to fire as light with the shovel as he can with the stoker.

Mr. Burgess: Has the Street Stoker Company misrepresented this mechanical device in any particular, to your company, that you are aware of?

Mr. Willsie: I do not know of anything that they have misrepresented.

Mr. Burgess: That would indicate that they are a reliable firm, would it not?

Mr. Willsie: Yes.

Mr. Burgess: Are you willing to subscribe to their statement wherein they advertise that the stoker will increase the tonnage hauled by a locomotive?

Mr. Willsie: I believe we can take the tonnage and make better time with the stoker than with the hand fired engine.

Mr. Burgess: Are you willing to subscribe to their statement, where they say that the Street stoker insures the working of locomotives to their full capacity?

Mr. Willsie: More so than the hand firing, yes, sir.

Mr. Burgess: Are you willing to subscribe to the statement that the Street stoker increases the average speed of heavy freight trains?

Mr. Willsie: Yes, sir.

Mr. Burgess: Are you willing to admit that the Street stoker insures the maximum steam pressure at all times?

Mr. Willsie: No, I would not say that, on any engine, at all times.

Mr. Burgess: It would, if it was operating successfully and the coal was of the proper quality, would it not?

Mr. Willsie: I think you can hold her up nearer her pumping point with the steam stoker than you can if it is hand fired, loaded to capacity?

Mr. Burgess: Are you willing to subscribe to the statement by this company, that it reduces the overtime of train crews?

Mr. Willsie: Yes, sir; it will reduce the overtime.

Mr. Burgess: Are you willing to subscribe to the statement that it gives the fireman time to watch signals, thereby increasing safety?

Mr. Willsie: Yes, it gives him more time to do whatever he wishes to do.

Mr. Burgess: Do you think that a fireman can follow the locomotive with more regularity if there is a Street stoker applied?

Mr. Willsie: I think it is possible to do that. I could not say, but we have some men who can follow with hand firing right along, but there are men who cannot follow with hand firing that can with stoker firing.

Mr. Burgess: Are you willing to subscribe to the statement that it gives the fireman a better training for a locomotive engineer?

Mr. Willsie: No, I cannot see where it would make a man a better engineer.

Mr. Burgess: Are you willing to subscribe to the statement that the Street stoker eliminates, to a very great extent, the objectionable black smoke?

Mr. Willsie: Yes, we have less black smoke with the stoker than we do with a hand fired engine, on those heavy trains, providing they are fired properly. We have some men that are careless about that, and indifferent.

Mr. Burgess: What is the cost of the Street stoker, approximately?

Mr. Willsie: I don't know. I think it is about $1,600.

Mr. Burgess: You have had considerable experience with that mechanical device, have you not?

Mr. Willsie: I have made quite a few trips, yes, sir.

Mr. Burgess: Approximately speaking, can you state the cost of the upkeep?

Mr. Willsie: No, I cannot tell that. The stoker people claim from 50 cents to 75 cents a day.

Mr. Burgess: Per 100 miles?

Mr. Willsie: Yes, sir.

Mr. Burgess: In your experience, have you found that exceeded?

Mr. Willsie: I cannot tell that; we have not got our figures close enough to tell that.

Mr. Burgess: So, in a general way, Mr. Willsie, you are not opposed to the adoption of the Street or some other stoker equally as good?

Mr. Willsie: On engines that need it.

Mr. Burgess: And engines that need it would be designated as what, in your judgment?

Mr. Willsie: Whenever we get beyond the capacity of hand firing.

Mr. Burgess: And what would you consider the capacity of hand firing?

Mr. Willsie: I do not figure that we are beyond the capacity of hand firing, unless it be with these engines that are mentioned as the Santa Fe type, the 2-10-2.

Mr. Burgess: If another engine burned equally as much coal, there would be just as much reason to suppose that that engine was beyond the capacity of hand firing would it not?

Mr. Willsie: If the engine burned as much coal as they did.

Mr. Sheean: What is the weight of that Santa Fe 2-10-2?

Mr. Willsie: 310,000 pounds on drivers, I believe.

Mr. Stone: 300,700.

Mr. Sheean: Now, Mr. Willsie, I am very much interested in this run—

Mr. Willsie: Wait a moment. That is 300,700 pounds weight on drivers. The total weight is 377,100.

Mr. Sheean: The weight on drivers is 300,700 pounds?

Mr. Willsie: Yes, sir; that is the weight on the latest ones.

Mr. Sheean: That is the Santa Fe type, that, in your judgment, is the only one of these engines in which the stoker is necessary?

Mr. Willsie: Yes, sir.

Mr. Sheean: Now, I am particularly interested in this run of 155 miles that you and Mr. Stone and Mr. Burgess have been talking about. I think you said they started out at 6:19 P. M. and were on that run until 7 P. M. That is correct, is it not?

Mr. Willsie: I have forgotten now which test that was. There were three tests up there.

Mr. Sheean: It was the heaviest test here.

Mr. Willsie: 26 tons?

Mr. Sheean: 4,600 tons, I think, was your tonnage.

Mr. Willsie: The 4,600 tons, I believe, was on the Beardstown division.

Mr. Sheean: Where was this 155-mile run?

Mr. Willsie: That is the Galesburg and Chicago run.

Mr. Stone: That was the heavy trip you spoke of.

Mr. Sheean: Galesburg to Chicago; you left at 6:19 P. M. and arrived at 7:10 A. M.?

Mr. Willsie: No, left at 6:19 A. M. and arrived at Clyde at 7 P. M.

Mr. Sheean: Well, from 6:19 A. M. until 7 P. M., then, that run was made, of 155 miles?

Mr. Willsie: Yes.

Mr. Sheean: With an engine of what weight on drivers?

Mr. Willsie: 198,550 pounds.

Mr. Sheean: That, under your present schedule, only takes a rate of $3.75 for the fireman?

Mr. Willsie: Yes, sir.

Mr. Sheean: So that all the fireman got, at the present time, for that run, was 155 times 3.75. He got for that run $5.81.

Mr. Willsie: He got $6.04, according to the timekeeper.

Mr. Sheean: $6.04?

Mr. Willsie: Yes.

Mr. Sheean: What time was he on duty?

Mr. Willsie: 14 hours and 15 minutes.

Mr. Sheean: And he got $6.04?

Mr. Willsie: Yes, sir.

Mr. Sheean: What did the engineer get?

Mr. Willsie: $8.69.

Mr. Sheean: $8.69?

Mr. Willsie: Yes.

Mr. Sheean: That is all the Burlington is paying these men at this time, $8.69 to the engineer, and $6.04 to the fireman, on that run?

Mr. Carter: Pardon me, how much did he say the fireman was getting?

Mr. Willsie: He made, on that trip, $6.04.

Mr. Carter: And the hours?

Mr. Willsie: The hours on duty or the time on duty were 14 hours and 15 minutes.

Mr. Sheean: That engine weighs 198,000 pounds on drivers, so that would take two firemen, under their proposition, on that run?

Mr. Willsie: Yes, sir.

Mr. Sheean: And under the proposal here those firemen would take a rate of $4.25, or each of the firemen would get $6.58, if this schedule had been in effect on the day you made that test, or $13.16 for the firemen and for the engineer a $6.40 rate, or he would receive $9.92; and that is exclusive of any question of preparatory time?

Mr. Willsie: Yes.

Mr. Sheean: Of course, you would have to add, under this proposal, preparatory time in addition to that, and a half hour, or whatever the time might be, between the outer switch at each terminal. But on this run, at the present time, all that the fireman was being paid for that work was $6.04?

Mr. Willsie: On that trip, that is what he received, yes, sir.

Mr. Sheean: And what did you say the engineer was getting?

Mr. Willsie: $8.69.

Mr. Sheean: Did you say that was the heaviest tonnage of any one of these tests?

Mr. Willsie: We burned more coal than on any of the other trips.

Mr. Sheean: You burned more coal than on any of the other tests?

Mr. Willsie: The others were much less.

Mr. Sheean: But on the heaviest coal burning test which you made at that time, the run was made in that length of time which you have given there?

Mr. Willsie: Yes, sir; the other trips burned considerably less coal.

Mr. Sheean: That was the heaviest coal tonnage, the most coal consumed?

Mr. Willsie: It was not the heaviest tonnage, but it burned the most coal.

Mr. Sheean: What was the tonnage there?

Mr. Willsie: The tonnage was 3,472 tons.

Mr. Sheean: But you shoveled the heaviest amount of coal?

Mr. Willsie: Yes, sir.

Mr. Sheean: The most coal per hour, as well?

Mr. Willsie: Yes, sir. The trip before that we had 3,715 tons, and only burned 19 tons of coal.

Mr. Sheean: Over the same run?

Mr. Willsie: The same run.

Mr. Sheean: On the other run preceding that, what did the fireman receive?

Mr. Willsie: The one I just mentioned, where they burned 19 tons?

Mr. Sheean: Yes.

Mr. Willsie: He made $5.62. On the trip before that, he shoveled 15 tons and received $6.04, the same amount that he did on this heaviest trip. There must have been a little terminal delay in there.

Mr. Sheean: So there is some little terminal delay, to make it $6.04?

Mr. Willsie: Yes.

Mr. Sheean: But irrespective of any terminal delay, on that $3.75 rate, every time you make that run, if there is no delay, the fireman gets $5.81 for 155 miles?

Mr. Willsie: I think he receives pay up to Western Avenue, 159 miles, but his train was given up at Clyde, 155 miles.

Mr. Stone: I understood you to say, Mr. Willsie, that in the last year or two of operation in your present position, you had shown a remarkable decrease in the hundred ton mile basis.

Mr. Willsie: Yes, sir.

Mr. Stone: Did you show the same decrease in the locomotive mile basis?

Mr. Willsie: We did not figure it on that basis, Mr. Stone.

Mr. Stone: Sure, you did not. Do I understand that the Street stoker, working at full speed, will handle 26 tons of coal in 3 hours and 41 minutes?

Mr. Willsie: I do not know, I never read anything of that. I never saw one put up to capacity.

Mr. Stone: But this fireman on the high gear did handle that amount of coal in 3 hours and 41 minutes?

Mr. Willsie: That is the time he consumed in shovelling coal, over a considerable period.

Mr. Stone: Well, he did not shovel it any place but in the fire box?

Mr. Willsie: No.

Mr. Stone: That is the only place he shoveled it?

Mr. Willsie: Yes, sir.

Mr. Park: You spoke, on two runs, of the fireman helping out the engineer. What kind of work is that?

Mr. Willsie: Well, he might get down to fix his headlight, or fill the lubricator for the engineer, if he asked him to; and he might ask him to get down en route, which sometimes occurs, to fill a rod cup with grease. And you might say nowadays he fills the oil cans, which we always thought was the fireman's duty, but some of them think it is the engineer's duty.

Mr. Park: And hand him tools?

Mr. Willsie: If he is working on the engine, he might hand the engineer some tools; but I feel that is the fireman's duty, though.

Mr. Carter: I want to identify this engine. What class of engine is that, between Galesburg and Chicago?

Mr. Willsie: Those last ones I spoke of were what we call the 0-1's, Mikados, 198,550 pounds on drivers.

Mr. Carter: Now, you have bigger Mikados than that, have you not?

Mr. Willsie: We had four trips with a larger size in the same territory.

Mr. Carter: That is, the O-2's?

Mr. Willsie: Yes.

Mr. Carter: What is your Santa Fe engine, what class?

Mr. Willsie: We call them M-1's and M-2's.

Mr. Carter: Do the O-2's pull more cars than the O-1's?

Mr. Willsie: They can pull more, yes, sir.

Mr. Carter: Will they burn more coal, in proportion to their tonnage?

Mr. Willsie: The hardest trip with the O-2, it burned 21 tons.

Mr. Carter: The O-2 was not pulling as much tonnage as the other?

Mr. Willsie: On that trip they pulled a little more tonnage, yes, sir. They pulled 3,536 tons on that trip.

Mr. Carter: What did the O-1 pull?

Mr. Willsie: On this trip she pulled 3,472 tons.

Mr. Carter: Practically very near the same tonnage?

Mr. Willsie: They had two other trips with the 0-2, where they pulled more tonnage than the ones I have specified; 3,748 tons on 18 tons and 3,702 tons on 18 tons of coal.

The Chairman: Is there anything further?

Mr. Carter: I am through.

The Chairman: Then the witness is excused. We will adjourn until 10 o'clock tomorrow morning.

(Whereupon, at 5 o'clock P. M. on February 9, 1915, an adjournment was taken until 10 o'clock A. M. February 10, 1915.)

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